

NOTES ON THE GENUS CLERODENDRUM (VERBENACEAE). XIII

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CLERODENDRUM Burm.

Additional & emended bibliography: Lemaire & Van Houtte, Fl. Serres. ser. 1, 4: pl. 324. 1848; Lindl., Gard. Chron. 1860: 339 & 456. 1860; Engl., Abhandl. Preuss. Akad. Wiss. 1894: 27. 1894; Mold., Geogr. Distrib. Avicenn. 2--12, 14--17, 19--23, 26, 28, 29, & 36--38. 1939; Mold., Biol. Abstr. 27: 984. 1887, 2026, & 3121. 1953; Coates & Palgrave, Trees Cent. Afr. 427--[429]. 1957; Anon., Amer. Midl. Nat. 60: 388. 1960; Phillips & Barber, Ornament Shrubs 31 & 109--110. 1981; Mold., Phytologia 59: 100--126. 1986.

Additional excluded species:

Clerodendron squiresii Merr., Journ. Arnold Arb. 19: 64--65. 1938 = *Glossocarya siamensis* Craib.

Clerodendron whitei Hook. ex Mold., Résumé 271 in syn. 1959 = *Chlorocodon whitei* Hook. f., Asclepiadaceae.

Clerodendron whitei Hook. f. ex Mold., Prelim. Alph. List Inv. Names 22 in syn. 1940 = *Chlorocodon whitei* Hook. f., Asclepiadaceae.

Clerodendrum gneissicola Mold., in herb. [Perrier 15044 from Madagascar, type, and 14977] = *Schrebera* sp., Oleaceae.

Volkameria foetida Hamilt. ex D. Don, Prodr. Fl. Nepal. 103 in syn. 1825 = *Caryopteris foetida* (D. Don) Thellung.

CLERODENDRUM CYRTOPHYLLUM Turcz.

Additional bibliography: Mold., Geogr. Distrib. Avicenn. 37. 1939; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 131, 133, 136, 136, 158, & 181. 1949; Mold., Journ. Calif. Hort. Soc. 15: 87. 1954; Wiltshire, Commonw. Mycol. Inst. Ind. Fungi 1: 422. 1954; Mold., Résumé 169, 172, 174, 175, 215, 259, 260, 262, 263, 275, 449, & 450. 1959; Prain, Ind. Kew. Suppl. 4, imp. 3, 101 (1959) and 5, imp. 2, 61. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 560 & 561. 1960; Hansford, Sydowia Ann. Myc., ser. 2, Beih. 2: 691. 1961; Liu, Illust. Nat. Introd. Lign. Pl. Taiwan 2: 1214, fig. 1022. 1962; Mold., Résumé Suppl. 3: 18 & 19. 1962; Li, Woody Fl. Taiwan 826. 1963; Mold., Résumé Suppl. 8: 3 & 4. 1964; Kow, Pharmacog. Stud. Crude Drugs Taiwan 60. 1966; Tingle, Check List Hong Kong Pl. 38. 1967; Hsu, Taiwania 14: 14. 1968; Hyland, U. S. Dept. Agr. Pl. Invent. 172: 307. 1968; Mold., Résumé Suppl. 17: 7. 1968; Farnsworth, Blomster, Quimby, & Schermerh., Lynn Ind. 6: 263. 1969; El-Gazzar & Wats., New Phytol. 69: 483 & 485. 1970; Franch., Pl. David., imp. 2, 1: 231. 1970; Willaman & Li, Lloydia 33, Suppl. 3a: 220. 1970; Mold., Fifth Summ. 1: 287, 292, 293, 299, 313, 358, 438, 439, 442--445, 462, & 469 (1971) and 2: 864. 1971; Huang, Pollen Fl. Taiwan 243 & 281, pl. 165, fig. 31--33. 1972; Dournes, Journ. Agric. Trop. Bot. Appliq. 20: 66 & 169. 1973; L. H. & E. Z. Bailey, Hortus Second, imp. 18, 188. 1974; El-Gazzar, Egypt. Journ. Bot. 17: 75 & 78. 1974; L. H. & E. Z. Bailey, Hortus Third 285. 1976; Hsiao, Fl. Taiwan 4:

420 & 421 (1978) and 6: 121, 1980; Hu, Enum. Chin. Mat. Med. 113 & 218. 1980; Mold., Phytol. Mem. 2: 277, 281, 282, 291, 303, 348, & 535. 1980; Mold., Phytologia 51: 162. 1982; Reis & Lipp, New Pl. Sources Drugs 251. 1982; Duke & Ayensu, Med. Pl. China 2: 636. 1985; Mold., Phytologia 58: 416 (1985) and 59: 125--126. 1986.

Illustrations: Hayata, Icon. Pl. Formos. 2: fig. 39. 1912; Itò, Taiwan Shokubutu Dzusetu [Illust. Formos. Pl.] 598. 1928; Kanehira, Formos. Trees, ed. 2, fig. 605. 1936; Liu, Illust. Nat. Introd. Logn. Pl. Taiwan 2: 1214, pl. 1022. 1962; Huang, Pollen Fl. Taiwan 243, pl. 165, fig. 31--33. 1972; Duke & Ayensu, Med. Pl. China 2: 636. 1985.

A slender, erect, woody or semi-woody undershrub, shrub, or small tree, 1--6 m. tall, "the entire plant with a nauseating smell"; stems to 5 cm. in diameter; crown spreading to 2.5 m.; branches and branchlets rather slender, gray-brown, very obtusely tetragonal, densely puberulent or subpubescent when young, becoming less so or even glabrate in age, not very twiggy; nodes not at all swollen, not annulate; principal internodes 1--4 cm. long; leaf-scars very small, circular, prominulent; leaves numerous, decussate-opposite, ill-scented, without scales; petioles very slender, 0.6--5 cm. long, flattened and subcanalicate above, densely puberulent or pubescent, basally not noticeably ampliate; leaf-blades chartaceous or thin-membranous, dull dark- or deep-green above, rather lighter beneath, shiny, oblong or elliptic to oblong-elliptic, lanceolate-elliptic, lanceolate, or oblong-ovate, 5--27 cm. long, 2.8--6 cm. wide, usually apically obtusely long-acuminate or sometimes only acute, marginally entire, basally rounded or obtuse (rarely acute), very obscurely pulverulent-puberulent or glabrous above, minutely puberulent or glabrate beneath; midrib very slender, flat or sub prominulent above, prominent beneath; secondaries very slender, 5--8 per side, arcuate-ascending, flat above, prominent beneath, joined in many loops near the margins; vein and veinlet reticulation rather abundant, often obscure above, the larger parts prominulent beneath; inflorescence axillary and terminal, in cymose or corymbiform, very loosely spreading, dichotomous, and pubescent panicles 6--30 cm. long and wide, divaricate, many-flowered, minutely bracteate, the cymes long-pedunculate; peduncles slender, 6--9.5 cm. long, brown, densely puberulent, divaricate; inflorescence ramifications numerous, uniformly slender, brown, puberulent; bracts linear, about 5 mm. long; flowers fragrant or odorless (depending on the time of day?), small, sometimes described as "very attractive" or as "ill-smelling"; calyx green or greenish, persistent, 4- or 5-dentate or -lobed, the lobes ovate or triangular, apically acute; corolla white or cream-color, mostly greenish-yellow or yellow before unfolding, externally pubescent, the tube slender, 8--10 mm. long, the 5 lobes imbricate, oblong, 4.5--9 mm. long; stamens 4, long-exserted, twice as long as the corolla-tube; filaments green or greenish; anthers oblong, deep-purple or brown, composed of 2 thecae; pollen grains subprolate to oblate-spheroidal, 43--53 x 43--54 μ , the colpi 35--42 x 2 μ ; style pale-green or only apically greenish, as long as or shorter than the stamens; stigma shortly bifid; ovary externally glabrous;

fruiting-calyx accrescent, fleshy, red, more or less enveloping the fruit; fruit drupaceous, at first green, later red to blue or bluish-black, finally purple or red-purple to black, attractive, globose, 5--6 mm. long and wide; seeds black; chromosome number: $x = 12$.

This species is based on Fortune A.17 from Hong Kong. It is widely distributed in China (especially the northern and central portions), Korea, Taiwan, and Indochina; sometimes cultivated. The pollen description given above is taken from Huang (1972), based on Huang 5607 from Taiwan.

Turczaninow's original (1863) description of the species is: "(*Euclerodendra paniculata*). Cl. ramis teretiusculis, ad apicem tetragonis glabris; foliis petiolatis oblongo-ovatis vel lanceolatis integerrimis incurvatis falcatis longe acuminatis, basi rotundatis subcordatisque glaberrimis, subtus pallidioribus; cymis axillaribus terminalibusque puberulis, paniculam, folia paulo superantem constituentibus; calycis 4 fidi corollae tubo cylindrico triplo brevioris, lobis triangularibus acutis. China borealis, Fortune No. 17 A."

Li (1963) says that "An examination of the type of *C. glaberrimum* Hayata proves that it cannot be distinguished from *C. cyrtophyllum* Turcz. The inflorescence, as shown also in Kanehira's illustration, is hairy and not glabrous. The longer and narrower leaves as characterized by Hayata also fall within the range of variation of this widespread and common species." He cites Faurie 298, 404, 1024, & 1025, Henry 1, 562, & 1295, Kawakami & Hayata s.n., Kawakami & Mori 7045 (the type of *C. glaberrimum*), Kanehira 21158, Makino s.n., Matuda 755, Oldham 393 & 396 (the type of *C. formosanum*), Ko s.n., Sasaki 204 & 21564, Tanaka 347, Tanaka & Shimada 11166, and Wilson 10789, all from Taiwan.

Rehder (1931) comments that "On examination of the type of *Cordia venosa* Hemsl. at Kew I found that this species is identical with *Clerodendron cyrtophyllum* Turcz. The type specimen was collected by E. Faber in 1887 on the Ningpo Mountains and distributed as Faber, no. 183. The specimen consists of a small branch with two rather sparingly branched inflorescences only 6--10 cm. in diameter bearing a small number of mature fruits with enlarged calyces and young calyces without corollas. On account of its small inflorescences the specimen looks quite unlike the usual specimens with inflorescences 15--30 cm. in diameter, but on closer examination the specimen agrees in all its parts perfectly with *C. cyrtophyllum*. Flowering material of this species from the same locality collected by E. Faber in 1888 under no. 645 is represented in this herbarium."

Collectors have encountered *Clerodendrum cyrtophyllum* in forests and woodlands, valley forests, thickets and open thickets, on savannas and mountainsides, in shady woods and coppices, along roadsides and "tomb-sides", on open or wooded slopes, on bare or open grassy hillsides, especially in gravelly red soil or dry sandy soil, in open fields and potato fields, in dry clay meadows, on the borders of terraces, in dense shaded ravines, among rocks, and in open shrubby and moist shady places in general, at 100--2200 m. altitude, in flower from May to January, and in fruit from June to December.

Chung reports this plant "common in rocky situations" on Amoy island; Lei found it "abundant in sandy soil on dry level land of village commons: on Hainan island; Taam describes it as "abundant among scattered shrubs on dry clay level land and on slopes" in Hong Kong, where Woo found it to be "common in thickets along streams". Fung reports it "fairly common in sandy soil and rocks in thickets on dry gentle slopes" on Hainan; Clemens reports it "locally abundant on low hills" in Annam. In Fukien it is described as "common" by Norton and as "common in open fields" by Chung. In Kwangsi it is said to be "rare in open thickets" by Chung, but as "fairly common as scattered shrubs" by Tsang. In Kwangtung Tsang describes it as "fairly common in dry sandy forest soil" and "abundant along roadsides in dry clay meadows". On Taiwan it is said to be "common" by Henry, "at low altitudes" by Kao, and "common in roadside thickets" by Wilson.

Hu speaks of the plant as "a pretty species for ornamental use". Stewart refers to it as "a big tree". On Chung 2062 the inflorescences are said to have been reddish. Insect-galled leaves are seen on Fung 20406.

The corollas of *Clerodendrum cyrtophyllum* are mostly described as "white" [viz., by the Baileys (1976) and Hsiao (1978) and on Bois 526, Chung 1687, Chung & Tso 43398, Clemens & Clemens 4:21, Fan & Li 40, Fung 20406, Henry 1873, Hu 5555 & 12345a, Lei 86, McClure 9489, Morse 658, Taam 1535 & 2281, Tak 2, Tsang 2 & 21358, Tsang & Fung 412, Woo & Woo 367, and Ying 8541, but as "whitish" by Dunn & Tutcher (1912), "creamy-white but greenish-yellow at unfolding" on Ching 2008, "greenish-white" on Chan 1161, Keng 755, and Pételet 1067, "yellowish-white on Henry 1, Hu 11245, and Liang 62208, "yellowish" on Norton 1552, "greenish-yellow" on Fennell 1263, "greenish" on Ching 6428, "yellow-greenish" or "yellowish-green" on Steward & Cheo 732, "yellow" on Chung 1740 and Lau 20288, "pink" on Chung 2219, and "blue" on Chung 1626 (possibly an error for fruit color).

Vernacular and common names recorded for the species are "Chinese glorybower", "chue sze ching", "dà qīng gēn", "green-white clerodendron", "hosaba-kusagi", "i tsz tsoi", "iu tsz tsoi", "iu tsz ts'oi", "kô:p ma:ng" [=night-sickness], "lu-pien-ch'ing", "makiba-kusagi", "May flower glorybower", "nan yang", "po'chháu-iu", "ta-ch'ing-kên", "tzou tsing tsoi", and "yiu tze ts'oi".

McClure reports that the leaves of this plant are eaten as a vegetable on Hainan island. Dourne (1973) reports that a decoction of the leaves is used to treat "night sickness" - hence one of the vernacular names listed above. Tsang also states that the leaves are edible, and McClure asserts that the leaves are consumed as a vegetable by the Ius aborigines along the North River in Kwangtung. Chiu is authority for the statement that the leaves are also employed in the treatment of pox and itch. Duke & Ayensu (1985) add that the leaves and roots are used as an antipyretic in China, as well as a detoxicant and diuretic, a preventive for epidemic meningitis, and in the treatment of tonsilitis, pharyngitis, mumps, and both insect- and snakebites. Hu (1981) reports that the leaves and the roots are regularly sold in Chinese pharmacies as "Herba et Radix

Clerodendri Cyrtophylli.

Willaman & Li (1970) and Kow (1966) report the presence of an unnamed alkaloid in the stems of this species. Wiltshire (1941) reports that the species is often a host for the fungus *Meliola clerodendri* Yamamoto in Japan and Taiwan, citing Yamamoto s.n. from Taiwan as voucher.

It is worth mentioning that the Fennell 1263 collection, cited below, represents material grown in Florida from the seed of a Stewart & Cheo collection made in Kwangsi, China, at 1200 feet altitude; Hyland's (1968) no. 302818, cultivated in Maryland, was also from Taiwanese material. Bailey (1935) lists *Clerodendrum cyrtophyllum* as offered to the horticultural trade at that time only by the Tai-hoku dealers.

Dunn & Tutcher (1912) record the species from Lantau Island, St. John's Island, and Pakhoi. Maximowicz (1886) cites Fortune 11 & 17, Oldham 398, and unnumbered collections of David, Grijs, Hance, Krone, and Stewart from Amoy, Kiangsi, Korea, Canton, Hainan, and St. John's Island. Franchet (1884) cites Franchet 832 from Kiangsi and Fortune 11 from Korea. Hsiao (1978) cites Faurie 404, Henry 1, Kanehira 21158, Oldham 393, and Wilson 10789 from Taiwan, describing the plant as "wide-spread throughout the island from low to medium altitudes".

Dop (1935) cites unnumbered collections of Lecomte & Finet from Cambodia, Harmand and Thorel from Laos, Clemens, Eberhardt, Harmand, Lecomte & Finet, and Poilane from Annam, and Balansa, Bois, Bon, Brousmeche, Chevalier, d'Alleizette, Duport, Demange, Lecomte & Finet, Mouret, Pételet, and Simond from Tonkin. Altschul (1973) cites Chung 1715 and Tsang 24204.

A key to distinguish *C. cyrtophyllum* from other taxa occurring in Indochina will be found under *C. hahnianum* Dop in the present series of notes, which see.

Among inaccuracies and errors found in the literature of *C. cyrtophyllum* may be mentioned that Prain (1901) cites Maximowicz's 1886 work as "1887", while both Hsiao (1978) and Li (1963) cite it as "1866". Liu (1962) cites Turczaninow's 1863 work as "36, III". while Lecomte (1935) cites it as "XXXVI, I". The Itô (1928) reference is sometimes cited as "1927".

The Liu & Cheng 4813 collection, cited below, bears a label inscribed "Flora of Chekiang", but the collection was apparently made in Kiangsu. Lei 86 is a mixture with something non-verbenaceous.

Material of *C. cyrtophyllum* has been misidentified and distributed in some herbaria as *C. hainanense* Hand.-Mazz., *C. trichotomum* Thunb., *C. trichotomum* var. *fargesii* (Dode) Rehd., and *Pregna* sp.

On the other hand, the Woo 152, distributed as typical *C. cyrtophyllum*, actually is the type collection of *C. cyrtophyllum* f. *dentatum* Mold., while Tso 21153 is *C. elachistanthum* Merr.

Citations: CHINA: Anhwei: Cheng 4043 (W--1671656); Ching 3074 (La); Chow 62 (Ac, N), 142 (Ac, W--3008381); Fan & Li 40 (W--1756422); Ip 5131 (Ca--233115), 5217 (Ca--232737), 6340 (Vi), s.n. [Herb. Univ. Nanking 6340] (W--1279786); Sun 1153 (N). Chekiang:

Barchet 564 (W--596127); *Cheng* 5012 (Ca--295728); *Cheo & Wilson* 115 [Herb. Univ. Nanking 12761] (Bi, Ca--316399, Ca--354677), 192 [Herb. Univ. Nanking 12838] (Ca--316398, Ca--354568); *Chiao* 1500 [Herb. Univ. Nanking 14806] (Bi), s.n. [Herb. Univ. Nanking 14511] (Ur, W--1426911), s.n. [Herb. Univ. Nanking 14699] (Go, W--1427053), s.n. [Herb. Univ. Nanking 14806] (W--1427115); *Ching* 2008 (Ca--281554, Ca--295647, W--1246867), 5012 (Ba, Ba); *Hu* 1519 (Ca--362219); *Keng* 724 (Ca--361746), 755 (Ca--361717), 1056 (Ca--362012); *Lin & Cheng* 5122 (Ca--295668); *F. N. Meyer* 436 (Ar--19837, Ca--219018, Du--11065), 1611 [S.P.I. 43021] (Ar--19838, N). *Fukien*: *Chang* 41566 (Bz--19118); *Cheng* 1008 (Ca--286950, Mu), 1072 (Ca--563799), 1506 (Du--250185), 1740 (Du--250184); *Ching* 2223 (Ca--281557, W--1247068); *Chung* 694 (Ca--420354), 1740 (Ca--225549), 2062 (Ca--19124), 2138 (Ca--19123), 2219 (Bz--19122), 2796 (Ca--243760), 2856 (Ca--243624, Ca--420280), 5272 (N); *En* 2138 (Bz--19120, Mu), 2279 (Bz--19121), 2724 (Bz--19119, Mu); *Ging* 15708 (Ur); *Metcalf & Chang* 141 (Vi); *Tai* 11158 (Um--151); *J. B. Norton* 1552 (W--1172730), 1553 (W--1172731). *Hunan*: *Dahleström* 343 (S); *Fan & Li* 19 (Bz--19111), 457 (Bz--19112). *Kiangsi*: *L. H. Bailey* s.n. [Kuling, July 9, 1917] (Ba), s.n. [Kuling, July 20, 1917] (Ba); *Cheng* 55 (W--3008400); *Cheo* 94 (Gg--310910, W--1756410); *Chiao* s.n. [Herb. Univ. Nanking 18755] (Mi, W--1554150); *Ching* 4813 (I); *Chung & Sun* 280 (N), 607 (N), 733 (N); *Ip* s.n. [Herb. Univ. Nanking 1811] (Ca--230445, It, W--1279788); *Lau* 4013 (S, W--1752755); *A. N. Steward* s.n. [Herb. Univ. Nanking 2733] (Ca--230444, Ca--230446, W--1279787); *Tsiang* 9805 (N); *E. H. Wilson* 1525 (W--777225, W--777226). *Kiangsu*: *Ching* 4813 (Ba); *Lin & Cheng* 4813 (Ca--295697); *Ling* 2364 [Herb. Univ. Nanking 12316] (Ca--316397). *Kwangsi*: *Ching* 6428 (Ca--409788, N, W--1248675); *Morse* 658 (N, N); *Steward & Cheo* 732 (Bz--19113, Bz--19114, N, S); *Tsang* 23885 (N), 24204 (N), 24648 (N), 27927 (Ca--1286198, W--1757341). *Kwangtung*: *Chun* 5124 (Ws); *Lau* 20288 (N); *May* 131 (Bz--19117); *Tsang* 21162 (S), 21358 (Ca--11268, I, Mi, N, N, S); *Tsiang* 2617 (N); *Tsui* 815 (N, W--1754877); *Wang* 3237 (N); *Ying* 854 (Du--250181, W--1513069), 1180 (Du--200928). *Kweichow*: *Carabera* 3121 (S); *Tsiang* 6932 (N, S, W--1554961). *Yünnan*: *Chiu H. 60* (Ba); *A. Henry* 1873 (N, N). Province undetermined: *Hu* 1146 (Ca--246841); *Ting & Shih* 1606 (Ac). CHINESE COASTAL ISLANDS: *Amoy*: *Chung* 1394 (Ca--225671), 1399 (Ca--225364), 1626 (Ca--225568), 1687 (Ca--224943), 1715 (Ca--225509); *DeGrijs* s.n. [Herb. *Hance* 397 in part] (Pd, Pd). *Hainan*: *Chun* 7098 (Ca--243582), 7106 (Ca--243582); *Chun & Tso* 43398 (B, N), 43494 (N); *Fung* 20406 (B, Bz--19115, Ca--11473, Mi, N, W--1751182); *Gressitt* 847 (E--1108862, I), 1138 (Gg--316084, I); *Hance* 397 in part (Pd), s.n. (T); *How* 70979 (Ca--594927, Mi, N, S); *Lei* 86 in part (B, Ba, Bz--19110, Ca--611714, Mi, N, W--1753864); *Liang* 62208 (Go, N, S, W--1670807); *McClure* s.n. [Herb. *Canton Chr. Coll.* 9489] (Bi, Gg--127991, N); *Tsang* 2 [Herb. *Lingnan Univ.* 15501] (Bz--19116, Ca--315742, I, S, W--1248868); *Tsang & Fung* 412 [Herb. *Lingnan Univ.* 17946] (B, W--1659925); *Wang* 33199 (Mi, Mu, N), 35473 (N); *Wu* 1087 (Du--250182). *Lantau*: *Taam* 1706 (Ba). HONG KONG: *Chan* 1161 (Mi); *Fortune A.17* (F--photo of isotype, Ld--photo of isotype, Mu--786--isotype, N--isotype, N--photo

of isotype, S--isotype, Sg--photo of isotype); Hu 5555 (W--2697259), 11245 (W--2730879), 12345a (W--2731277); Taam 1535 (Ba, Ca--82714, Mi, N, W--2063822), 1706 (Mi), 2281 (Ba, Mi, W--2072992); P. W. Woo 152 (Mi); Woo & Woo 367 (Mi). LAOS: Thorel 2417 (B). Vietnam: Annam: Clemens & Clemens 4121 (Ca--340579, Gg--156207, Mi, N, Ut--99202, W--1428092); Harmand s.n. (B); Pételet 3895 (N, W--1597334); Poilane 22799 (Ca--54815); Squires s.n. [Hue, Apr. 15] (Ca--307329). Tonkin: Balansa 921 (K, Ld--photo, N, N--photo), 3825 (B), 3884 (K); Bois 526 (B); Demange s.n. [Hanoi] (Ca--38892); Eberhardt 4360 (S); A. Henry 9557 (W--457161); Pasquier s.n. [Pételet 1865] (Ca--259684); Pételet 778 (Gg--215749), 1067 (Ca--223753), 1077 (B, Ca--223763), 1939 (B, Ca--38892, W--1597335). Province undetermined: McClure 700 [Herb. Canton Chr. Coll. 7505] (I). TAIWAN: Asai s.n. [Herb. Govt. Formosa 21483] (Ca--344545, La); Chuang 3916 (N); A. Henry 1 (N), 1873 (W--455725, W--455726); Hsu 4688 (S); Kanehira 313 (Ca--345300), s.n. [Hassen-zan, Aug. 18, 1927; Herb. Govt. Formosa 21158] (La); Kao 30101 (Ba), 30132 (La); Kawakami & Mori 7045 [Herb. Govt. Formosa 21064] (N--photo); Ko s.n. [July 9, 1936] (W--2063405); Oldham 398 (S, X); Sasaki s.n. [Herb. Govt. Formosa 21455] (Ca--344567, La); Tanaka 347 (La, S, W--1528127); Tanaka & Shimada 11166 (B, Br, Ca--517587, Go, La, Mi, Mu, N, S, W--1577464); E. H. Wilson 10789 (W--1052320). CULTIVATED: California: Walther 421 (Gg--163464, K). Florida: Fennell 1263 [Pl. Introd. 105678] (Ba).

CLERODENDRUM CYRTOPHYLLUM f. DENTATUM Mold., Phytologia 51: 162. 1982.

Bibliography: Mold., Phytoilogia 51: 162. 1982.

This form differs from the typical form of the species in having its leaf-blades marginally very coarsely dentate near the apex with 1--3 large divaricate teeth on each side.

The form is based on J. P. W. Woo 152 from a thicket along a stream at Sheung Shui, Hong Kong, collected on July 16, 1972, and deposited in the herbarium of the University of Michigan at Ann Arbor. The collector notes that the plant was "common" in the type locality and describes it as a shrub, 2 m. tall, the corollas white, and the fruit at first green, then red, and finally purple. Thus far the form is known only from the original collection.

Citations: HONG KONG: J. P. W. Woo 152 (Mi--type).

CLERODENDRUM DALEI Mold., Phytologia 4: 287--288. 1953.

Bibliography: Mold., Biol. Abstr. 27: 3121. 1953; Mold., Phytologia 4: 287--288. 1953; Hauman, Assoc. Étud. Tax. Fl. Afr. Trop. Ind. 1954; Mold., Résumé 145 & 449. 1959; G. Taylor, Ind. Kew. Suppl. 12: 36. 1959; Mold., Fifth Summ. 1: 240 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 230 & 535. 1980.

A shrub; branches and branchlets slender, light-gray, very sparsely puberulent, eventually glabrescent; nodes not annulate; principal internodes 0.9--5.3 cm. long; leaves decussate-opposite, numerous; petioles slender, 7--10 mm. long, minutely scattered-pilosulous or glabrous, nigrescent in drying; leaf-blades submembranous, elliptic, dark and nigrescent above in drying, much lighter beneath, 7--

11 cm. long, 2--4 cm. wide, apically long-acuminate, marginally entire, basally long-acuminate, glabrous on both surfaces; midrib very slender, flat above, prominulous beneath; secondaries filiform, 4--6 per side, arcuate-ascending, flat and often obscure above, only very slightly sub prominulous beneath; vein and veinlet reticulation rather sparse, indiscernible above, flat beneath; inflorescence axillary and fasciculate or terminating much abbreviated axillary twigs, rather few-flowered, nigrescent in drying; peduncle and inflorescence-ramifications more or less pubescent, densely so toward the base; pedicels filiform, 1--2 mm. long, glabrous, nigrescent; bracts linear, about 1 mm. long, nigrescent; calyx campanulate, about 3 mm. long and 2 mm. wide, its rim distinctly 5-toothed, the teeth triangular, about 1 mm. long, apically acute; corolla not known.

The type of this species was collected by I. R. Dale (no. 3811) near Marjorent, S. Digo, Kenya, in September of 1937, and is deposited in the Brussels herbarium. Thus far it is known to me only from the original collection.

Citations: KENYA: Dale 3811 (Br--type, Ld--photo of type, N--fragment of type, N--photo of type).

CLERODENDRUM DAUPHINENSE Mold., Bull. Torrey Bot. Club 77: 395--396. 1950.

Bibliography: Mold., Bull. Torrey Bot. Club 77: 395--396. 1950; E. J. Salisb., Ind. Kew. Suppl. 11: 56. 1953; Mold. in Humbert, Fl. Madag. 174: 150, 183, 184, & 267, fig. 29 (10--12). 1956; Mold., Résumé 155 & 449. 1959; Mold., Fifth Summ. 1: 259 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 248 & 535. 1980; Mold., Phytologia 58: 186. 1985.

Illustrations: Mold. in Humbert, Fl. Madag, 174: 183, fig. 29 (10--12). 1956.

A shrub or subshrub; stems woody, apparently virgate and unbranched, rather slender, brownish, densely short-pubescent with widely divergent hair on the upper (younger) parts, less so below; nodes not annulate; principal internodes 1.5--4 cm. long; leaves regularly ternate; petioles very short, about 2 mm. long, densely short-pubescent with hirsutulous hairs; leaf-blades apparently very small and fragile, apparently uniformly green on both surfaces, apparently suborbicular-ovate or broadly elliptic, 1--1.5 cm. long and wide, apically apparently obtuse, marginally entire, basally rounded, densely short-pubescent on both surfaces; midrib slender, obscure above, prominulous beneath; secondaries and veinlets apparently obscure or indiscernible on both surfaces; inflorescence apparently very few-flowered; calyx campanulate, 2--3 mm. long, 1--2 mm. wide. externally hirsutulous, its rim very shortly toothed; corolla white, hypocrateriform, its tube very narrowly cylindric, 5--6 mm. long, externally glabrous; filaments exserted about 8 mm. from the corolla-mouth; fruiting-calyx and fruit not known.

This species is based on R. Decary 4570 from granitic soil northeast of Vohitsiombe, in the province of Fort Dauphin, Madagascar, collected on August 3, 1926, and deposited in the Paris herbarium. Unfortunately the type specimen is very badly smashed so that the

exact characters of the species are difficult to ascertain. From what can be seen, however, the specimen does not seem to fit into any other known species of the genus. It is to be hoped that more and better material may soon become available.

To help distinguish this taxon from other Madagascar taxa in the genus, refer to the key given under *C. baronianum* Oliv. in the present series of notes.

Citations: MADAGASCAR: Decary 4570 (N--fragmnet of type, P--type).

CLERODENDRUM DECARYI Mold., Amer. Journ. Bot. 38: 322. 1951.

Bibliography: Mold., Amer. Journ. Bot. 38: 322. 1951; Mold. in Humbert, Fl. Madag. 174: 152, 205--207, & 267, fig. 33 (3). 1956; Mold., Résumé 155 & 449. 1959; G. Taylor, Ind. Kew. Suppl. 12: 36. 1959; Mold., Fifth Summ. 1: 259 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 248 & 535. 1980; Mold., Phytologia 58: 187. 1985.

Illustrations: Mold. in Humbert, Fl. Madag. 174: 205, fog. 33 (3). 1956.

A shrub or tree; branchlets and twigs rather slender, light-gray, obtusely tetragonal or subterete, glabrate, lenticellate, the younger parts often sulcate; leaf-scars rather large, prominent on younger wood; nodes not annulate; principal internodes 1--5 cm. long; leaves decussate-opposite; petioles medium-stoutish, 2--6 mm. long, glabrous, canaliculate above; leaf-blades coriaceous, bright-green above, somewhat lighter beneath, elliptic, 3--5 cm. long, 1.4--2.2 cm. wide, apically acute, marginally entire or sometimes slightly subrevolute, basally acute or obtuse, glabrous and shiny on both surfaces; midrib slender, impressed above, prominent beneath; secondaries slender, 5 or 6 per side, divergent, not much ascending, arcuately joined near the margins, prominulous on both surfaces; vein and veinlet reticulation fine, prominulous on both surfaces; inflorescence terminal, cymose, small, few-flowered or sometimes only 1-flowered; peduncles stramineous, 4--7 mm. long or obsolete, glabrous; pedicels stramineous, slender or stout, 5--10 mm. long, glabrous; bracts absent; bractlets and prophylla linear-setaceous, 1--2 mm. long, strigillose; calyx subcoriaceous, obconic-campanulate, 1.6--1.8 cm. long, about 1 cm. wide, glabrous throughout, venose on the upper half, its rim irregularly split, deeply 5-lobed, the lobes ovate, erect, firm, 3--5 mm. long, apically acute or often subapiculate; corolla infundibular-hypocrateriform, rose-colored, its tube slender, 3.5--4 cm. long, apically ampliate in funnelform fashion, externally glabrous, the limb about 2 cm. wide, the lobes about 1 cm. long; stamens and style exserted; filaments glabrous; anthers oblong, about 3 mm. long; style glabrous, exserted about 1 cm. from the corolla-mouth; stigma deeply bifid, its branches about 2 mm. long.

This species is based on Raymond Decary 18455 from the edge of a forest at Anosibé, south of Moramanga, Madagascar, collected on September 7, 1942, and deposited in the Paris herbarium. To distinguish from other Madagascar taxa in this genus, refer to the key under *C. baronianum* Oliv. in the present series of notes. Thus far it is known to me only from the original collection.

Citations: MADAGASCAR: Decary 18455 (E--photo of type, F--photo of type, Ld--photo of type, N--fragment of type, N--photo of type,

P--type).

CLERODENDRUM DEFLEXUM Wall., Numer. List [49], no. 1808 hyponym [as "Clerodendron"]. 1829; Pl. Asiat. Rar. 3: 10, pl. 215. 1831.

Synonymy: *Clerodendron deflexum* Wall., Numer. List [49], no. 1808. 1829. *Clerodendron flexum* Twining, Illust. Nat. Ord. Pl. 2: 104 sphalm. 1855.

Bibliography: Wall., Numer. List [49], no. 1808. 1829; Wall., Pl. Asiat. Rar. 3: pl. 215. 1831; Steud., Nom. Bot. Phan., ed. 2, 1: 382. 1840; Voigt, Hort. Suburb. Calcut. 466. 1845; Walp., Repert. Bot. Syst. 4: 104. 1845; Schau. in A. DC., Prodr. 11: 665. 1847; Twining, Illust. Nat. Ord. Pl. 2: 104. 1855; Buek, Gen. Spec. Syn. Candoll. 3: 106. 1858; Miq., Fl. Ned. Ind. 2: 875. 1858; Bocq., Adansonia, ser. 1 [Baill., Rec. Obs. Bot.], 3: 214. 1863; C. B. Clarke in Hook. f., Fl. Brit. India 4: 593. 1885; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 561. 1893; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 175. 1895; Gamble in King & Gamble, Journ. Roy. Asiat. Soc. Beng. 74 (2 extra): 826 & 828--829. 1908; Ridl., Journ. Roy. Asiat. Soc. Straits 57: 84. 1910; H. J. Lam, Verbenac. Malay. Arch. 263 & 363. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 74, 82--83, 108, & viii. 1921; Ridl., Fl. Malay Penins. 2: 624--625. 1923; Stapf, Ind. Lond. 2: 238. 1930; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1072. 1932; Fletcher, Kew Bull. Misc. Inf. 1938: 404, 407, 424, & 426. 1938; Mold., Suppl. List Comm. Vern. Names 2, 4--7, 9, 11, 13, 14, 17, 19, 20, & 24. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 60, 61, 63, & 89. 1942; Mold., Phytologia 2: 98. 1945; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 561. 1946; Mold., Alph. List Cit. 4: 1102. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 137--139, 143, & 181. 1949; Corner, Wayside Trees, ed. 2, 700--701. 1952; Wycherley & Nair, Proc. Sympos. Humid Trop. Veg. 274 & 277. 1958; Anon., Kew Bull. Gen. Ind. 77. 1959; Mold., Résumé 177, 179, 186, 187, 197, & 449. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 561. 1960; Mold., Résumé Suppl. 3: 19 & 20. 1962; Mold., Dansk Bot. Arkiv 23: 88. 1960; Burkill, Dict. Econ. Prod. Malay Penins. 1: 590--591. 1966; Mold., Résumé Suppl. 17: 8. 1968; Corner & Watanabe, Illust. Guide Trop. Pl. 753. 1969; Mold., Fifth Summ. 1: 294, 299, 304, 307, 322, 329, & 444 (1971) and 2: 864, 970, & 971. 1971; Mold., Phytologia 33: 372 (1976) and 34: 265. 1976; Mold., Phytol. Mem. 2: 284, 291, 295, 298, 313, 320, 348, & 384. 1980; Mold., Phytologia 57: 36. 1985.

Illustrations: Wall., Pl. Asiat. Rar. 3: pl. 215. 1831; Corner & Watanabe, Illust. Guide Trop. Pl. 753. 1969.

A low, bushy shrub or undershrub, 1.5--3 m. tall, or small spindly tree to almost 7 m. tall, often flowering when only 30 cm. tall, upright, and only slightly woody; stems often myrmecophytes; branches pubescent; twigs finely or thickly velutinous-pubescent, with hollow slightly swollen internodes; leaves decussate-opposite; petioles 1.5--6.5 cm. long; leaf-blades mostly very thinly membranous, oblong or elliptic to narrowly or broadly obovate-elliptic or subpanduriform, mostly quite large, 12.5--40 cm. long, 3.2--15 cm. wide, api-

cally rather long-acuminate, marginally subentire or sinuate, occasionally obscurely dentate, basally cuneate or rounded, glabrous above when mature, softly pubescent on the venation beneath with sparse or dense velvety hairs; inflorescence in dense, many-flowered, lateral, deflexed, umbelliform or subcapitate heads or close pendulous panicles, mostly exclusively axillary in the axils of the upper leaves or sometimes a single pseudo-terminal one, 2.5-5 cm. wide, red-pubescent; peduncles 2.5-13 cm. long, bearing mostly 1 (rarely 3) heads; bracts red, narrow, often 1 or 2 pairs of rather larger foliaceous crimson ones persisting in the fruiting-heads; calyx deep-pink or red to purple, 6-8 mm. long, divided to below the middle or nearly to the base, the lobes lanceolate or linear-lanceolate, suberect, red or reddish to purple-pink or purple, narrow, apically sub acuminate, sparingly pubescent; corolla white or greenish-white to cream-color or yellow, or white suffused with rose-purple, slightly pubescent, the tube 1.2-1.8 cm. long, the limb 1.2 cm. wide, the lobes elliptic, about 6 mm. long; fruiting-calyx fleshy, crimson, star-like, 1.2-1.8 cm. wide; fruit drupaceous, round, 6-8 mm. long and wide, succulent, at first purple, finally blackish or black.

This species is based on Wallich 1808/1 from Penang and 1808/2 from Singapore, the former perhaps collected by Griffith and the latter collected in 1822, both deposited in the East India Company herbarium at Kew. The species is native from Thailand, Indochina, and Malaya to the Riou and Lingga Archipelagos in the Lesser and Greater Sunda Islands of Indonesia.

Collectors have encountered this plant in evergreen, secondary, and swamp forests, high jungles, along streams, and among rocks, from sealevel to 1300 m. altitude, in flower in February, March, August, September, November, and December, and in fruit in August, September, November, and December. The Abbes found it growing in thin humus over porous sand in areas with the watertable near the soil level in Johore. Burkhill (1966) reports it as common in the forests throughout the Malay Peninsula; Smitinand found it common in the secondary forests in Vietnam. On the other hand, Phloenchit reports it "not common" in the deciduous forests of Thailand and Sinclair refers to it as "rare" along paths in swamp forests of Singapore. Voigt (1845) reports it cultivated in the Calcutta suburbs.

Corner (1952) tells us that "This is a very variable plant in the size and hairiness of the leaf. It is recognised at once from the down-turned heads of flowers reddened by the bushy sepals. The Malay names attributed to it are many but none is generally known. It is said to have haunting properties." He reports it "common in lowland and mountain forests to 4,000 feet" altitude in Sumatra and Malaya.

The corollas are described by Bakhuizen (1921) as "flesh-coloured" and as "cream-white" by Corner & Watanabe (1969), while they are said to have been "white" on Charoenphol & al. 5099, Sinclair 5019, and Stone 6592, "greenish-white" on Abbe & Abbe 10139, "white and greenish" on Stone 12049, and "yellow" on Smitinand 6415.

Wood specimens accompany Hamel 1252 and Toroes 1376 in the University of Michigan herbarium/museum.

Vernacular and common names recorded for the species are "balong

ayam" [=cock's comb], "cheret hutan" [=woodland plant for diarrhea], "chuchohgambar", "kajoe hariting", "kajoe kissil", "kajoe si panggil", "kajoe si panggil tombak", "kajoe si panggil tombok", "kayu sampa" [=decline wood], "kayu sampa kēlau", "kelusam jantan", "lémak bérok" [=baboon's fat], "lidah kérbau" [=buffalo's tongue], "lidah kérbau bétina", "mata ajam", "mematje", "mérambahong bukit" [=hill haunted plant], "nodding witch's tongue", "péchah périck hitam" [=black *Ixora*], "sékacha lima jantan", "sekati", "sékatí lima", "sékatí lima jantan", "sémbong hutan jantan" [=big wood *Blumea*], "sepanggil", "setawar bukit", "sétawar hutan" [=woodland sétawar], and "sumpu kuwang". According to Burkhill (1966), the name "lémak bérok" is more usually applied to species of *Xanthophyllum*. He also notes that some of the vernacular names listed above actually indicate the plant's use in native magic. An extract of the roots is employed by the Malays in the treatment of fevers and of bowel complaints such as diarrhea.

Fletcher (1938) cites only Kerr 7653 from Thailand.

Clarke (1885) comments that "Hardly any of Schauer's section of *axilliflorae* [sic] have the inflorescences so exclusively axillary as this, which he places in a section defined as having a terminal panicle."

Ridley (1910) notes the existence of "a glabrous form" of the species from Ulu Temengoh, Malaya. Kassim s.n. exhibits narrow and very thinly membranous leaf-blades; Poore 1166 also has very thin-membranous leaf-blades and they are decidedly subpanduriform in shape. Griffith 6049 has the leaves very pubescent beneath and may actually represent var. *vilosulum* Mold.

Corner & Watanabe (1969) erroneously describe the fruits as berries, rather than drupes.

The Maxwell 82-259, Poore 57, and Stone 6630, distributed as typical *C. deflexum*, actually are its var. *vilosulum* Mold.

Citations: THAILAND: Charoenphol, Larsen, & Warncke 5099 (Ac); Larsen & Larsen 32791 (Ac, Ld); Phloenchit 52 [Herb. Roy. For. Dept. 10717] (Ld); Sørensen, Larsen, & Hansen 4746 (Bm), 4822 (Cp), 5135 (Bm). VIETNAM: Smitinand 541; [Herb. Roy. For. Dept. 24402] (Ld). MALAYA: Johore: Abbe & Abbe 10139 (N); Herb. Bot. Bogor. 19155 (Bz). Kelantan: Boey 274 (K1--21709). Malacca: Burkhill 2162 (Bz--19163); Griffith 49 (Pd), 6049 (L, Mu--780, Pd, S, Ut--11529), s.n. [Malacca 1845] (Br). Negri Sembilan: Carrick 680 (K1--3650); Holttum 9546 (Bz--19160, Ca--346263). Pahang: M. R. Henderson 11481 (Ca--360599); Holttum 20954 (Bz--19157, Bz--19158, Ca--374301); Kiah & Strugnell 23937 (N); B. C. Stone 6592 (K1--6763), 8918 (Ne--33492). Penang: Collector undetermined s.n. (Pd); C. Curtis 81 (W--206462); Nauen 37763 (Bz--19156); Nikoul 3 (Bz--19162, Bz--19164); Wallich 1808/1 (L--cotype, Mu--1693--cotype, Pd--cotype, Pd--cotype, T--cotype). Perak: Seimund s.n. [Dec. 1925] (Bz--19159). Selangor: Abbe, Abbe, Chandapilla, & Tassim 9034a (N); Poore 307 (K1--307); B. C. Stone 12049 (K1--20719). Singapore: Sinclair 5019 (W--2912700); Wallich 1808/2 (L--cotype). Trengganu: Kassim s.n. [29/8/64] (K1--3850); Poore 1166 (K1--6166). MALAYAN ISLANDS: Lalang: Seimund s.n. [Pulau Lalang, Dec. 1925] (Ca--360412). GREATER SUNDA ISLANDS: Bintan:

Blinnemeijer 6495 (Bz--19145), 6513 (Bz--19144). Doerian: Rachmat 39 (Bz--19142). Dompak: Blinnemeijer 6412 (Bz--19148). Karimon: Blinnemeijer 7867 (Bz--19150, Bz--25495). Lingga: Blinnemeijer 6862 (Bz--19145); Teijsmann s.n. [Boek Sepientjang] (Bz--19151, Bz--19152). Papan: Blinnemeijer 7786 (Bz--19149). Redjai: Blinnemeijer 7626 (Bz--19146). Riouw: Teijsmann s.n. [Tandjoeng Pinang] (Bz--19153, Bz--19154). Sambo: Buwalda 6223 (Bz--11279). Sumatra: Boeea 6224 (Mi), 6409 (Mi, Mi), 6637 (Mi), 6734 (Mi), 6738 (Mi), 7043 (Mi, W--1681961), 7122 (Mi), 7239 (Mi); Buwalda 6514 (Bz--72614, Bz--72615); Hamel 1252 (Mi); Krukkoff 4232 (N), 4293 (N), 4296 (Mi, N); Teijsmann s.n. (Bz--19127); Thorenaar T.61 (Bz--19126); Toroes 1325a (Mi), 1355 (Mi), 1362 (Mi), 1376 (Mi), 1386 (Mi, N); Voogd 224 (Bz--19125). Temiang: Blinnemeijer 7637 (Bz--19147). LESSER SUNDA ISLANDS: Banka: Berkhouw s.n. [27 Aug. 1886] (Bz--19139), s.n. [28/8/1886] (Bz--19138); Blinnemeijer 1496 (Bz--19130), 1855 (Bz--19129, Bz--25494), 2076 (Bz--19128); Kobus s.n. (Bz--19131); Teijsmann s.n. [Bakem] (Bz--19133), s.n. [Pemetjak] (Bz--19134, Bz--19135), s.n. [Pengkal Pinang] (Bz--19136, Bz--19137), s.n. [Toboalei] (Bz--19132). Menda-nau: Teijsmann s.r. [Pra] (Bz--19140, Bz--19141). MOUNTED ILLUSTRATIONS: Corner & Watanabe, Illust. Guide Trop. Pl. 753. 1960 (Ld).

CLERODENDRUM DEFLEXUM var. *BRACTEATUM* Ridl., Fl. Malay Penins. 2: 625 [as "Clerodendron"]. 1923.

Synonymy: *Clerodendron deflexum* var. *bracteatum* Ridl., Fl. Malay Penins. 2: 625. 1923.

Bibliography: Ridl., Fl. Malay Penins. 2: 625. 1923; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1072. 1932.

This variety differs from the typical form of the species in having the heads surrounded by leafy bracts.

It is based on a Ridley collection from Reservoir Woods, Singapore, and a Kloss collection from Ginting Bidai, Selangor, Malaya. Ridley (1923) refers to it as "An odd form".

Nothing is known to me of this plant except what is stated in its very sparse bibliography. Possibly specimens with 1 or 2 pairs of foliaceous bracts persisting in the inflorescence, as referred to in the description of typical *C. deflexum* Wall., may actually represent this variety.

CLERODENDRUM DEFLEXUM var. *VILLOSULUM* Mold., Phytologia 33: 372. 1976.

Bibliography: Mold., Phytologia 33: 372 (1976) and 34: 265. 1976; Mold., Phytol. Mem. 2: 295 & 535. 1980; Mold., Phytologia 57: 36. 1985.

This variety differs from the typical form of the species in having the branches, branchlets, petioles, and lower leaf-surface densely velutinous-villosulous, the upper leaf-surface densely puberulous, and the nodding inflorescences more densely flowered and congested.

The variety is based on M. E. D. Poore 57 from along a jungle path below the Gap on Fraser's Hill, Pahang, Malaya, collected on September 27, 1959, and deposited in the herbarium of the University of

Malaya at Kuala Lumpur.

Collectors describe this plant as a shrub, 1--3.5 m. tall, with a single erect stem, the leaf-blades green above, light-green and velvety beneath, the inflorescence conic-capitate, the flowers pedicellate, the bracts dark-red, the calyx and inflorescence-axes also dark-red, the corolla whitish-cream, the stamens white, and the fruit globose, at first green or dark-green but ripening black. They have found it growing in shaded areas of swamp forests and in regenerating logged forests, at 5--33 m. altitude, in both flower and fruit in September and in fruit alone in January. Material has previously been regarded as and distributed as typical *C. deflexum* Wall. The Griffith 6049 collection, cited under *C. deflexum* may actually belong, instead, to the present variety (as therein noted).

Citations: MALAYA: Pahang: Hons. Students KLU.11507 (K1--15748, Ld); Poore 57 (Ac--isotype, K1--67--type, Ld--photo of type, N--photo of type); B. C. Stone 6630 (K1--6815). Singapore: Maxwell 82-259 (Ac).

CLERODENDRUM DEKINDTII Gürke, Engl. Bot. Jahrb. 28: 301 [as "Clerodendron"]. 1900; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 46, 82, & 93. 1936.

Synonymy: *Clerodendron dekindtii* Gürke, Engl. Bot. Jahrb. 28: 301. 1900. *Clerodendrum cuneatum* Auct. ex Friedrich-Holzhammer in Merxmüller, Prodr. Fl. Südw. Afr. 13 (122): 5 in syn. 1967 [not *Clerodendron cuneatum* Gürke, 1900, nor Turcz., 1863].

Bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 519. 1900; Gürke, Engl. Bot. Jahrb. 28: 301. 1900; K. Schum., Justs Bot. Jahresber. 28 (1): 496. 1900; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 43. 1904; Dinter, Feddes Repert. Spec. Nov. 16: 168. 1919; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 7, 30, 46, 82, & 93. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 50, 52, & 89. 1942; H. N. & A. L. Mold., Pl. Life 2: 55. 1948; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 118, 121, & 181. 1949; Mold., Résumé 141, 145, 146, 148, 151, 426, & 449. 1959; Mold., Résumé Suppl. 1: 9 (1959), 9: 3 (1969), and 12: 6. 1965; Friedrich-Holzhammer in Merxmüller, Prodr. Fl. Südw. Afr. 13 (122): 4 & 5. 1967; Mold., Résumé Suppl. 16: 20. 1968; Mold., Fifth Summ. 1: 228, 235, 240, 242, 247, 253, 443, & 461 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 218, 225, 230, 232, 236, 242, 244, & 535. 1980; Mold., Phytologia 59: 120 & 121. 1986.

A shrub or shrublet, 1--4 m. tall, densely short-pubescent throughout; bark gray; leaves decussate-opposite, numerous but mostly crowded on very short twigs, variable in size; petioles very slender, 1--1.5 cm. long; leaf-blades submembranous, obovate-lanceolate, 3--4 cm. long, 1--2 cm. wide, mostly 2--3 times as long as wide, apically acute, marginally entire, basally gradually attenuate into the petioles, appressed-pubescent on both surfaces, more densely so beneath; inflorescence terminal, the cymes very loose, few-flowered, 5--10 cm. long, the axis and branches softly pubescent; bracts lanceolate, short-stipitate, similar to the leaves in all respects but the lowest only 2--3 cm. long and hardly 1 cm. wide, the upper still smaller; bractlets also lanceolate but only 1 cm.

long at the most; pedicels 1.5 cm. long; calyx broadly campanulate, 5--6 mm. long, externally pubescent, 5-fid to about the middle, the lobes triangular-suborbicular, apically obtuse; corolla plainly zygomorphic, blue or pink and white, the tube 10--12 mm. long, curvate, basally swollen, about twice as long as the calyx, the limb 5-parted, the lobes unequal, the upper short and white, the lower arched and pink or bluish; stamens and style 3--3.5 cm. long, exserted.

This species is based on Dekindt 366 from bushy meadows, at 1770 m. altitude, in Huila, Angola, and Antunes 366, also from Huila, both deposited in the Berlin herbarium, now destroyed. Of these Thomas (1936) has designated Dekindt 366 as the type (lectotype).

Gürke (1900) notes that "Die zur Sect. *Cyclonema* gehörende Art hat habituell mit den kleinblättrigen Formen von *C. myricoides* R. Br. Ähnlichkeit, ist aber besonders durch die Kurzzweige und gedrängten Blätter so auffallend, dass sie sehr wohl als einige Art betrachtet werden kann."

Vernacular names reported for the plant are "ndimbuiria" and "omufilamapongo".

The leaves are employed in native medicine in Angola in the treatment of headaches.

Collectors have encountered the plant in bushy meadows, in mixed forests on deep white sand, and among rocks and granite boulders on sand flats, at 1180--2200 m. altitude, in flower in January, February, and November, and in fruit in February.

The corollas are described as having been "blue" on Miller B.1226 and as "light-pink" on Peter 34991.

Thomas (1936) cites only Dekindt 366 from Angola and Dinter 65 & 1453 from Namibia; Baker (1900) cites only Antunes 366 and Dekindt 366 from Angola. Friedrich-Holzhammer (1967) cites DeWinter 3681 & 3880, DeWinter & Hardy 8070, DeWinter & Leistner 5098, Dinter 5301 6860, Merxmüller & Giess 1713, Seydel 1251, and Walter 1418 from Namibia.

Material of this species has been misidentified and distributed in some herbaria as *C. dekindtii* var. *dinteri* Thomas, *C. discolor* (Klotzsch) Vatke, *C. myricoides* (Hochst.) R. Br., and *C. myricoides* var. *camporum* Gürke. As an example of how it has been treated by authorities: in 1920 DeWildeman annotated Descamps 13 as *C. bequaertii* var. *debeerstii*; in 1921 he called it *C. villosulum* var. *debeerstii*; in 1930 Gürke annotated it as *C. myricoides* var. *camporum*; in 1933 Robyns annotated it as *C. wildemannianum* var. *debeerstii*; and, finally, in 1935 Thomas identified it as *C. dekindtii*!

It may be noted that Friedrich-Holzhammer (1967) implies that Dinter's (1919) "*C. cuneatum* Gürke" is really *C. dekindtii* and therefore also the Dinter 65, 741, & 2419 which Dinter cites from Namibia.

The Giess 3483, Giess & Müller 13943, Rehm 1839, Seydel 125., Winter 5098, and Winter & Hardy 8070, distributed as typical *C. dekindtii*, are better regarded as representing its var. *dinteri* Thomas.

Citations: ZAIRE: Descamps 13 (Br, Ld--photo, N--photo). TANZANIA: Tanganyika: Peter 34991 (B). KENYA: C. W. Elliot 422 (Af). ZIMBABWE: O. B. Miller B.1226 (Af). NAMIBIA: Abner 63 (Mu); Boss A.

77 (Tm--34470); Dinter 6860 (B, Mu); Merxmüller & Giess 1713 (Mu); Volk 2631 (Mu); Walter & Walter 1418 (Mu); Winter 3880 (Mu).

CLERODENDRUM DEKINDTII var. *DINTERI* Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 83. 1936.

Bibliography: B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 83. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 50, 52, & 89. 1942; H. N. & A. L. Mold., Pl. Life 2: 56. 1948; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 118, 121, & 181. 1949; Mold., Résumé 146, 151, 152, & 449. 1959; Mold., Résumé Suppl. 12: 6. 1965; Mold., Fifth Summ. 1: 242, 247, 253, & 255 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 232, 236, 242, 244, & 535. 1980; Mold., Phytologia 59: 120. 1986.

This variety differs from the typical form of the species in having the leaf-blades marginally crenate, the calyx only 4 mm. long, and the corollas greenish-blue [*fide* Thomas].

It is based on Dinter 741 from the Otavi Mountains in Namibia, collected on January 14, 1909, and deposited in the Berlin herbarium, now lamentably destroyed. Thomas (1936) cites also Dinter 2419 from Namibia and Baum 386a & 386b from southern Angola.

Collectors describe this plant as an erect bush or small shrub, 1.5-3 m. tall, of loose habit, the wood soft, the leaves also soft and mostly crowded at the ends of the branches, the flowers small and unpleasantly scented, the stamens long-protruding, and the ripe fruit jet-black or "almost black" and shiny.

They have found it growing on dolomitic mountains, on rocky kopjes consisting of weathered granite, and on granite mountains with pockets of gravel between rocks, at 1120-1400 m. altitude, in flower from December to March and in June, and in fruit from December to March. Schoenfelder reports it "mostly on the tops of hills" in Namibia, while Seydel found it "scattered and abundantly cropped by wild animals" in the same country.

The corollas are said to have been "clear-blue" on Santos 780, "white" on Giess 3483 and Giess & Müller 13943, "whitish-blue" on Schoenfelder 52, "green and blue" on Winter & Hardy 8070, "dirty-white with a mauve lower petal" on Winter 3681, and "yellow-brown" or "yellowish" on Seydel 969.

Material of this variety has been misidentified and distributed in some herbaria as *C. cuneatum* Gürke, typical *C. dekindtii* Gürke, *C. discolor* var. *crenatum* Thomas, and *C. myricoides* (Hochst.) R. Br. On the other hand, the Abner 63 and Winter 3880, distributed as *C. dekindtii* var. *dinteri*, actually are best regarded as representing typical *C. dekindtii* Gürke.

Citations: ZIMBABWE: Olsson s.n. [29.XI.1947] (S). ANGOLA: Huí-la: Baum 386 (Br, Ld--photo, N, N--photo, S); R. Santos 780 (U). NAMIBIA: Baum 386 (Mu); Boss s.n. (Tm--35647); Dinter 5301 (Af, B, W--1374347); Giess 3483 (Mu); Giess & Müller 13943 (Mu); Rehm 1839 (Mu); Schoenfelder 52 (Af); Seydel 969 (Mu, S, W--2671031), 1251 (Mu, N), 2939 (Ba); Volk 2561 (Mu); Winter 3681 (Mu), 5098 (Mu); Winter & Hardy 8070 (Mu). SOUTH AFRICA: Transvaal: Breyer s.n. [Herb. Transvaal Mus. 18327] (Ld); Pole-Evans 4493 (Ld), 415744 (Cb);

Pott 5651 (Cb); F. A. Rogers 21619 (S), 30464 (S).

CLERODENDRUM DEMBIANENSE Chiov., Ann. Bot. Roma 9: 128 [as "Clerodendron"]. 1911; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 46, 82, & 93. 1936.

Synonymy: *Clerodendron dembianense* Chiov., Ann. Bot. Roma 9: 128. 1911.

Bibliography: Chiov., Ann. Bot. Roma 9: 128. 1911; Fedde & Schust., Justs Bot. Jahresber. 39 (2): 319. 1913; Prain, Ind. Kew. Suppl. 5, imp. 1, 61. 1921; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 46, 82, & 93. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 45, 49, & 89 (1942) and ed. 2, 110, 116, & 181. 1949; Mold., Résumé 134, 143, & 449. 1959; Prain, Ind. Kew. Suppl. 5, imp. 2, 61. 1960; Cuf., Bull. Jard. Bot. Brux. 32: Suppl. 798. 1962; Mold., Fifth Summ. 1: 212 & 235 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 203, 235, & 535. 1980.

A shrub or small tree, to 4 m. tall, glabrous or subglabrous throughout except for the nodes and leaf-blade venation; leaves ternate; petioles 2--10 mm. long; leaf-blades ovate or ovate-oblong, 7--12 cm. long, 2--6 cm. wide, apically abruptly acuminate, marginally coarsely dentate or serrate, basally rounded or broadly cuneate, glabrous above, pilose on the venation beneath; inflorescence terminal, paniculate, oblong-pyramidal, the cymes dichotomous, rather dense, 3--8-flowered; bracts foliaceous, similar to the leaves but equaling to twice as long as the smaller ones; pedicels 2--3 mm. long, bibracteolate, arcuately reflexed; calyx campanulate-infundibular or patinaform, 2--3 mm. long, about 10 mm. wide, glabrous, the lobes 2--3 mm. long, apically rounded, recurved, separate by a rather deep and acute sinus; corolla glabrous, its tube blue, about 8 mm. long, 3.5 mm. wide, basally incurved, the limb 2--3 cm. wide, 5-lobed, oblique, flat or concave, the 4 upper lobes pale or white, about 1 cm. long, apically rounded, the fifth (lower) lobe larger, blue or violet, rounded-obovate, flattened-subunguiculate, 1.5--2 cm. long; stamens about 3 cm. long, arcuate, about 3--4 times as long as the upper corolla-lip; filaments basally pilosulous; fruit comprised of 1--4 spherical drupes, 7--9 mm. wide, at first green, finally black and juicy.

This member of the Subgenus *Cyclonema* is based on *Chiovenda 1060*, 1279, and 1490 from Dembia, Ethiopia, the first from Bambolò, collected July 16, 1909, the second from the Cococc Valley above Gondar, collected August 2, 1909, and the third from Gondar village, collected August 21, 1909; of these Thomas (1936) has designated *Chiovenda 1060* as the type (lectotype), deposited in the Florence herbarium. He cites *Chiovenda 1060 & 1090*, *Schimper 451*, and *Steudner 1308 & 1311* from Ethiopia and *Engler 437* from Tanzania.

Chiovenda (1911) remarks that the species is "Prox. *C. ugandense* quod differt foliis saepius oppositis, calyce majore minus profunde inciso, corollis majoribus, labio infero obovato-spatulato, longiore et angustiore, tube breviore."

Clerodendrum dembianense has been collected at 2000 m. altitude. Nothing is known to me of this species beyond what is stated in its

bibliography.

CLERODENDRUM DENSIFLORUM W. Griff., Notul. Pl. Asiat. [Posthum. Pap.] 4: 170. 1854.

Synonymy: *Clerodendron densiflorum* Griff. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 561. 1893.

Bibliography: W. Griff., Notul. Pl. Asiat. [Posthum. Pap.] 4: 170 & 749. 1854; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 561. 1893; H. Hallier, Meded. Rijks Herb. Leid. 37: 72. 1918; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 87, 108, & viii. 1921; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 561 (1946) and imp. 3, 1: 561. 1960; Mold., Fifth Summ. 1: 282 (1971) and 2: 864 & 971. 1971; Mold., Phytol. Mem. 2: 272, 384, & 535. 1980.

Griffith's original (1854) description of this plant is "Basi suffruticosa, erecta ramosa 4,5 pedalis. Foliis longe petiolatis infernis cordatis acuminatis subintegris basi 3-nervus, nervo medio ad basin utrinque 1-glanduloso (glandulo e 4 confertis callosis composito) sublente utrinque punctulat. subtus ad nervos tenuissime velutinis. Cymis axillaribus terminalibusque aggregatis corymbum densiflorum mentientibus, floribus albis. Cor. tubus rectus longissimus in laciniarum marginibus revolutis staminibus longiss. exsertis, stylum longe superant. Anth. caeruleo livide. Cal. glandulosis fructifer amplectus, ruber subcarnosusque. Capsula atro-caerulea, baccata 4-sperma. Sem. nigrescentia angulato. Albumine 0. Radicula brevis infera. Hab. Frequent Mergui in Ruderat, florem, July to Nov. Mergue Herb. 79."

Bakhuisen (1921) reduces this species to synonymy under *C. bracteatum* Wall., but without giving any reason for so doing. He does not cite -- and apparently did not see -- the type collection from Tenasserim in southern Burma. *Clerodendrum bracteatum* is not known from Tenasserim, nor, for that matter, from anywhere else in Burma.

Nothing is known to me of Wallich's plant beyond what is stated in its meager bibliography (above).

CLERODENDRUM DENTICULATUM Mold., Geogr. Distrib. Avicenn. 5, nom. nud. 1939; Carib. Forester 2: 14. 1940.

Bibliography: Mold., Geogr. Distrib. Avicenn. 5. 1939; Mold., Carib. Forester 2: 14. 1940; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 24 & 89. 1942; Mold., Alph. List Cit. 1: 186. 1946; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 43 & 181. 1949; E. S. Salisbury, Ind. Kew. Suppl. 11: 56. 1953; Alain in León & Alain, Fl. Cuba, imp. 1, 4: 319 & 322. 1957; Mold., Résumé 51 & 449. 1959; Mold., Fifth Summ. 1: 95 (1971) and 2: 864. 1971; Alain in León & Alain, Fl. Cuba, imp. 2, 2: 319 & 322. 1974; Mold., Phytol. Mem. 2: 88 & 535. 1980.

A tree; branchlets stout, subterete, flattened at the nodes, light-gray, corky, glabrous; twigs slender, angulate-striate, brown, glabrous, issuing from a tomentose felt around the basal leaf-scars of the adjacent branchlet; nodes not annulate; principal internodes 1--5 cm. long; leaves decussate-opposite (or only approximate on the younger twigs), often clustered; petioles very slender, 5--12

mm. long, brown, canaliculate above, glabrous; leaf-blades chartaceous or membranous, uniformly dull-green on both surfaces (the immature ones brunnescens in drying), elliptic or obovate, 2.3--5.5 cm. long, 1--2 cm. wide. apically obtuse or rounded (or rarely subacute), marginally denticulate with very minute apiculate teeth from the apex to the base, basally acute, glabrous on both surfaces and finely areolate; midrib very slender, impressed but distinct to the apex (!) above, prominule beneath; secondaries 4--6 per side, very slender, lightly impressed or obscure above, lightly prominule beneath; vein and veinlet reticulation indiscernible above, often obscure beneath; inflorescence axillary, apparently small and few-(2--4-?) flowered; peduncles obsolete or to 1 mm. long; fruiting pedicels slender, 4--11 mm. long, spreading, glabrate; flowers and fruit not known.

This problematic species is based on E. L. Ekman 9176 from Mogote, in the limestone hills near Palma de Cauto, Oriente, Cuba, at 300 m. altitude, collected on April 10, 1918, and deposited in the Berlin herbarium, now doubtless destroyed. A note by the collector in the type sheet says "Closely allied to *Cler. anafensi* if not the same". Another notation, this one by Urban, says "spec. nov., si hujus generis".

A key to distinguish this species from other known Cuban taxa is given under *C. grandiflorum* (Hook.) Schau. in the present series of notes.

Citations: CUBA: Oriente: Ekman 9176 (B--type, Ld--photo of type, Mi--photo of type, N--isotype, N--photo of type, S--isotype).

CLERODENDRUM DEPENDENS A. DC., Bull. Herb. Boiss., ser. 2, 1: 581 [as "*Clerodendron*"]. 1901; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 53 & 89. 1942.

Synonymy: ?*Clerodendron dependens* A. DC., Bull. Herb. Boiss., ser. 2, 1: 581. 1901.

Bibliography: A. DC., Bull. Herb. Boiss., ser. 2, 1: 581. 1901; Prain, Ind. Kew. Suppl. 3: 44. 1908; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 53 & 89 (1942) and ed. 2, 123 & 181. 1949; Mold. in Humbert, Fl. Madag. 174: 147, 156, 266, & 267. 1956; Mold., Résumé 155 & 449. 1959; Mold., Fifth Summ. 1: 259 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 248 & 535. 1980; Mold., Phytologia 58: 184. 1985.

A glabrous shrub; branchlets slender, alternately flattened; leaves decussate-opposite, very short-petiolate; petioles 2--4 mm. long; leaf-blades rigid, ovate-lanceolate, about 7 cm. long and 2 cm. wide, apically obtusely acuminate, basally obtuse or subrotundate; secondaries about 8 per side, arcuately joined some distance from the margins; cymes axillary, bifid; peduncles very slender, 20 cm. or more in length, pendulous; flowers not known but the corollas said to be white; fruit "resembling an olive" (according to the collector).

This problematic species is based on Mocquerys 225 from Maroa, in eastern Madagascar, deposited in the DeCandolle Herbarium at Geneva. Nothing is known to me of this plant except what is stated in its sparse bibliography (above).

CLERODENDRUM DEWITTEI Mold., Phytologia 4: 288. 1953.

Bibliography: Mold., Biol. Abstr. 27: 3121. 1953; Mold., Phytologia 4: 288. 1953; Hauman, Assoc. Étud. Tax. Fl. Afr. Trop. Ind. 1954; Mold., Résumé 141 & 449. 1959; G. Taylor, Ind. Kew. Suppl. 12: 36. 1959; Mold., Fifth Summ. 1: 228 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 218 & 536. 1980.

A woody vine; branches slender, light-grayish, glabrous; branchlets very slender, brownish, glabrous; nodes not annulate; principal internodes 2.5--6.5 cm. long; leaves decussate-opposite or subopposite-approximate, apparently confined to the young branchlets, borne on conspicuously elevated corky sterigmata; petioles slender, 5--8 mm. long, short-pubescent in lines on the flattened upper surface, otherwise glabrous; leaf-blades membranous, dark-green on both surfaces, brunnescence in drying, hardly lighter beneath, elliptic-lanceolate, 5--9 cm. long, 2.1--3.5 cm. wide, apically acuminate, marginally entire, basally rounded, glabrous and shiny on both surfaces; midrib very slender, flat above, prominulous beneath; secondaries filiform, 5 or 6 per side, arcuate-ascending, irregular, flattened or microscopically prominulous above, prominulous beneath, not conspicuously anastomosing; veinlet reticulation very abundant and fine, conspicuous but hardly prominulous on both surfaces; inflorescence borne on the leafless branches, on short supra-axillary or axillary twig-like peduncles 3--4 cm. long, bearing several linear bractlets, especially toward the base, glabrate or minutely and sparsely puberulous, densely many-flowered, umbelliform or capitate; pedicels filiform, 1--3 mm. long, glabrate or minutely puberulous; bractlets numerous, linear, 2--3 mm. long, often light-colored; calyx campanulate, about 7 mm. long and 5 mm. wide, glabrous, deeply 5-lobed, the lobes ovate, about 2 mm. long, apically apiculate; corolla hypocrateriform, its tube very slender, about 18 mm. long, glabrous, the limb about 1 cm. wide; stamens exserted about 1.5 cm. from the corolla-mouth.

This apparently endemic species is based on G. F. De Witte 291 from Lukulu, Katanga, Zaire, collected between April 30 and May 3, 1931, and deposited in the Brussels herbarium. Thus far it is known only from the original collection.

Citations: ZAIRE: De Witte 291 (Br--type, Br--isotype, Ld--photo of type, N--isotype, N--photo of type).

CLERODENDRUM DINKLAGEI Gürke, Engl. Bot. Jahrb. 18: 175 [as "Clerodendron"]. 1893; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 35, 61, & 93. 1936

Synonymy: *Clerodendron dinklagei* Gürke, Engl. Bot. Jahrb. 18: 175. 1893.

Bibliography: Gürke, Engl. Bot. Jahrb. 18: 175. 1893; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 293 & 302. 1900; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 101. 1901; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 35, 61, & 93. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 47 & 89. 1942; H. N. & A. L. Mold., Pl. Life 2: 56. 1948; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 113 & 181. 1949; Mold., Résumé 139 & 449. 1959; Mold., Fifth Summ. 1: 223 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 213 & 536. 1980;

Mold., *Phytologia* 58: 354. 1985.

A shrub; stems brown, narrowly hollow; branchlets densely clothed with reflexed articulated hairs which are only 1--2 mm. long; petioles 5--10 cm. long; leaf-blades oblong or elliptic-oblong, 8--10 cm. long, 4--6 cm. wide, apically long-acuminate, marginally entire, basally obtuse or rounded, sparsely clothed with appressed hairs on both surfaces; cymes axillary, few-flowered, corymbiform; peduncles 1--2 cm. long; bracts minute, subulate-filiform; calyx broadly campanulate, 5-parted nearly to the base, the lobes lanceolate or ovoid-lanceolate, apically acuminate, 3-veined, pubescent; filaments to 3.5 cm. long; corolla, fruiting-calyx, and fruit not known.

This obscure species is based on *Dinklage 1008* from moist woods at Great Batanga, Cameroons, collected on February 2, 1891, and deposited in the Berlin herbarium, now doubtless destroyed. Gürke (1893) says of it: "Steht dem *C. Blüttneri* sehr nahe, ist aber durch schwächeren und kürzere Behaarung unterschieden; auch sind hier die Haare rückwärts gerichtet, bei *C. Blüttneri* abstehend. Die Blätter sind am Grunde abgerundet und nicht herzförmig wie bei *C. Blüttneri*, auch etwas länger zugespitzt. Die Kelchzipfel sind länger, schmäler und mehr zugespitzt als bei jener Art."

Baker (1900) cites only the type collection, but Thomas (1936) adds *Dinklage 1443*, also from the Cameroons.

Jackson (1893) cites Gürke's original publication of this taxon as "1894", the titlepage date, but it was actually published in 1893.

Baker's (1900) key to the tropical African species of this genus known to him with non-capitellate inflorescences and large flowers may prove of some help in distinguishing this species from its close relatives (the key has been somewhat modified by me for the sake of clarity and the nomenclature brought up-to-date):

1. Leaf-blades oblong.
2. Leaf-blades glabrous.
 3. Corollas bright-red.....*C. splendens*.
 - 3a. Corollas white.....*C. buchholzii*.
- 2a. Leaf-blades pubescent.
 4. Leaf-blades narrowed to the base.....*C. harnieranum*.
 - 4a. Leaf-blades basally rounded.
 5. Petioles only 2--8 cm. long.....*C. umbellatum*.
 - 5a. Petioles usually longer, 5--10 cm. long.....*C. dinklagei*.
 - 4b. Leaf-blades basally cordate.....*C. buettneri*.
- 1a. Leaf-blades ovate.
6. Leaf-blades glabrous.
 7. Calyx not inflated.
 8. Leaf-blades apically more or less acuminate..*C. buchholzii*.
 - 8a. Leaf-blades apically obtuse or rounded...*C. hildebrandtii*.
 - 7a. Calyx inflated.....*C. thomsonae*.
 - 6a. Leaf-blades more or less pubescent.
 9. Petioles short.
 10. Leaf-blades finely pubescent.....*C. acerbianum*.
 - 10a. Leaf-blades velvety on both surfaces.....*C. tricholobum*.
 - 9a. Petioles moderately long (1.2--2.5 cm.)....*C. pleiosciadium*.
 - 9b. Petioles very long (5--7 cm.).....*C. longipetiolatum*.

1b. Leaf-blades obovate.

11. Calyx finely pubescent.

12. Calyx inflated.....*C. umbellatum* f. *scandens*.

12a. Calyx not inflated.....*C. cordifolium*.

11a. Calyx densely fuscous-pubescent.....*C. fuscum*.

Nothing is known to me of *Clerodendrum dinklagei* beyond what is stated in its sparse bibliography (above).

CLERODENDRUM DISCOLOR (Klotzsch) Vatke, Linnaea 43: 536 [as "Clerodendron"]. 1882; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 84. 1936 [not *Clerodendrum discolor* Turcz., 1971, nor *Clerodendron discolor* Becc., 1902].

Synonymy: *Cyclonema discolor* Klotzsch in Peters, Naturwiss. Reise Mossamb. 66 (1): Bot. 262--263. 1861. *Clerodendron discolor* (Klotzsch) Vatke, Linnaea 43: 536. 1882. *Clerodendron discolor* Vatke apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 561. 1893. *Clerodendron myricoides* var. *discolor* Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 310. 1900. *Clerodendron myricoides* var. *discolor* (Klotzsch) J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 310. 1900. *Cyclonema myricoides* var. *tomentosum* Almagia in Pirotta, Fl. Col. Erit. [Ann. Inst. Bot. Roma 8:] 34. 1903. *Clerodendron bequaerti* DeWild., Bull. Jard. Bot. Brux. 7: 185--186. 1920 [not *C. bequaerti* DeWild., 1914]. *Clerodendron bequaerti* var. *debeerstii* DeWild., Bull. Jard. Bot. Brux. 7: 185. 1920. *Clerodendron villosulum* De Wild., Contrib. Fl. Katanga 165. 1921. *Clerodendron villosulum* var. *debeerstii* DeWild., Contrib. Fl. Katanga 165. 1921. *Clerodendrum discolor* var. *eudicolor* Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 84. 1936. *Clerodendrum wildemannianum* Robyns ex B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 84 in syn. 1936 [not *Clerodendron wildemannianum* Exell, 1930]. *Clerodendrum wildemannianum* var. *debeerstii* Robyns ex B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 84 in syn. 1936. *Clerodendrum villosulum* DeWild. apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 84 in syn. 1936. *Clerodendrum villosulum* var. *debeerstii* DeWild. apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 84 in syn. 1936. *Clerodendrum bequaerti* var. *debeerstii* De Wild. apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 84 in syn. 1936. *Clerodendrum myricoides* var. *discolor* (Klotzsch) J. G. Baker apud Mold., Prelim. Alph. List Inv. Names 23 in syn. 1940. *Cyclonema discolor* "Klotzsch in Peters" apud Cuf., Bull. Jard. Bot. Brux. 32: Suppl. 798 in syn. 1962. *Clerodendrum myricoides* var. *discolor* (Kl. in Pet.) Baker apud Cuf., Bull. Jard. Bot. Brux. 32: Suppl. 798 in syn. 1962. *Clerodendrum discolor* var. *discolor* [(Klotzsch) Vatke] ex Lewalle, Bull. Jard. Bot. Nat. Belg. 42 [Trav. Univ. Off. Bujumb. Fac. Sci. C.20]: [230]. 1972. *Clerodendron discolor* Klotzsch ex Mold., Phytol. Mem. 2: 384 in syn. 1980.

Bibliography: Klotzsch in Peters, Naturwiss. Reise Mossamt. 6 [Bot.], 1: 262--263. 1861; Vatke, Linnaea 43: 536. 1882; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 561 & 679. 1893; Gürke in Engl., Pflanzenw. Ost-Afr. C: 341. 1895; J. G. Baker in Thiselt.-

Dyer, Fl. Trop. Afr. 5: 310. 1900; Becc., Nelle Foreste Borneo 203. 1902; Almagia in Pirotta, Fl. Col. Erit. [Ann. Inst. Bot. Roma 8:] 134. 1903; Prain, Ind. Kew. Suppl. 3: 44. 1908; R. E. Fries in Von Rosen, Wiss. Ergebn. Schwed. Rhod.-Kong.-Exped. Bot. 2 (2): 275. 1916; H. J. Lam, Verbenac. Malay. Arch. 320 & 363. 1919; DeWild., Bull. Jard. Bot. Brux. 7: 185--186. 1920; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 94. 1921; DeWild., Contrib. Fl. Katanga 165. 1921; DeWild., Pl. Bequaert 2: 256--258. 1922; Fedde & Schust., Justs Bot. Jahresber. 48 (1): 497 (1927) and 53 (1): 1072. 1932; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 4, 10, 12, 13, 16, 47, 84--86, 92, 93, & 96. 1936; Mold., Prelim. Alph. List Inv. Names 23 & 24. 1940; Mold., Alph. List Inv. Names 16, 21, & 23. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 45, 49--51, 80, & 89. 1942; Mold., Alph. List Cit. 1: 74. 1946; W. Robyns, Fl. Sperm. Parc Nat. Albert 2: 142 & 146--147. 1947; H. N. & A. L. Mold., Pl. Life 2: 50, 55, & 57. 1948; Mold., Alph. List Cit. 2: 558 (1948), 3: 723 & 762 (1949), and 4: 1097, 1123, & 1140. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 110, 115--120, & 181. 1949; J. K. Jacks., Journ. Ecol. 44: 363. 1956; Mold., Résumé 134, 141, 143, 145, 150, 260, 267, 267, 271, 273, 276, & 449. 1959; Mold., Résumé Suppl. 1: 9, 16, & 25. 1959; Mold., Biol. Abstr. 35: 1688. 1960; Dale & Greenway, Kenya Trees 583. 1961; Cuf., Bull. Jard. Bot. Brux. 32: Suppl. 798--799. 1962; Hocking, Excerpt. Bot. A.4: 592. 1962; Mold., Résumé Suppl. 3: 15. 1962; F. White, For. Fl. North. Rhodes. 365 & 366. 1962; Mold., Résumé Suppl. 12: 6. 1965; Wild, Kirkia 5: 4. 1965; Mold., Résumé Suppl. 13: 4 & 6 (1966) and 15: 19. 1967; Glover, Gloss. Bot. Kipsig. Names Kenya 158. 1967; Mold., Résumé Suppl. 16: 7 & 8. 1968; Glover, Stewart, Fumerton, Marindany, & Anderson, Gloss. Botan.-Kipsig. Names 232 & 259. 1969; Gillett, Numb. Check-list Trees Kenya 46. 1970; J. K. Jacks. in Eyre, World Veget. Types 94. 1971; Mold., Fifth Summ. 1: 212, 221, 228, 232--235, 240, 242, 247, 249, 250, 255, 358, 440, 443, 451, 459--461, 464, & 473 (1971) and 2: 864. 1971; Lewalle, Bull. Jard. Bot. Nat. Belg. 42 [Trav. Univ. Off. Burumb. Fac. Sci. C.20]: [230]. 1972; Mold., Phytologia 28: 441 (1974), 31: 350 & 351 (1975), and 34: 261 & 262. 1976; Mold., Phytol. Mem. 2: 201--203, 218, 222, 223, 225, 229, 230, 240, 249, 384, 391, & 536. 1980; Reis & Lipp, New Pl. Sources Drugs 251. 1982; Mold., Phytologia 58: 332 & 441. 1985.

A large bush, subshrub, or even tall shrub, 0.5--4 m. tall, usually much-branched; stems often herbaceous, often single; sap colorless; bark rough; branches more or less polygonal in cross-section, especially the young ones very densely short-pubescent or velutinous to tomentose; leaves whorled, unpleasantly aromatic, the upper ones gradually passing into bracts; petioles very slender, to 1.8 cm. long but often very short, basally articulate; leaf-blades elliptic or obovate-elliptic, 3.5--16 cm. long, 1.2--7 cm. wide, apically rounded-acute or cuneiform, marginally coarsely dentate (or the lowest sometimes entire), basally attenuate or cuneiform, pubescent on both surfaces, more densely so or subtomentose and paler beneath, with grayish hairs, especially on the venation; secondaries 6--9 per side, quite visible on both surfaces; inflorescence axillary and terminating the stem and branches, paniculate, pedunculate, branched,

the axis and cyme-branches villous; flowers zygomorphic, pleasantly scented, pedicellate; pedicels very slender, to 4 mm. long, villous, basally bibracteolate; bracts foliaceous; bractlets linear, marginally ciliate; calyx more or less campanulate, 4--5 mm. long, green flushed with purple, more or less densely pubescent with violet hairs that often turn gray in drying, the 5 lobes triangular-rounded, erect, apically obtuse and purplish; corolla infundibular or hypocrateriform, in various shades of blue, lavender, or violet to mauve or purple, the lower lip usually darker or varicolored, the tube 6--7 mm. long, apically ampliate, curvate, the limb oblique, bilabiate, 5-lobed, the lobes 10--11 m. long, dorsally pubescent; filaments blue or pale purplish-violet, exserted; anthers blue or pale-blue to brown; style blue; fruit drupaceous, fleshy, juicy, at first green, then red, finally black, about 7 mm. long and 10--12 mm. wide, sometimes insect-galled to the size of a small marble.

This very variable polymorphic species is based on an unnumbered Peters collection from Rios de Sena, Mozambique.

The corolla is described by collectors as "blue" on Bequaert 2754, 3454, 3989, 5021, & 5544, Lebrun 5039, Peter 3019, and Schlieben 7294, "pale-blue" on Bequaert 4213 & 4907 and Roechoudt 13 and by Gürke (1895), "deep-blue" on Stone 7937, "lavender-blue" on Greenway & Doughty 8526, "blue-violet" on Ash 2947, "blue-mauve" on Germain 4113 and Lucas 191, "light-blue" on Peter 42178, "lilac-blue" on Tanner R.T. 3291, "royal- and pale-blue" on Tanner R.T. 3831, "violet" on DeWitte 1290 and Lebrun 9139, "mauve" on Reekmans 1388 and Roechoudt 7, "claret, not blue" on Dümmer 2572, "rather dark mauve" on Faulkner 1496, "blue to violet" on Reekmans 1988, "bluish-gray" on Peter 9730, "clear-blue, whitish on the outside" on Lewalle 129, "pale-mauve, the lobes violet" on Germain 2897, "pale-violet, one petal dark-violet" on Germain 1117, "green except for the pale-blue lower petal" on Robinson 2935, "pale-blue, the lower petal dark-blue" on Strid 4095, and "purplish-violet, the lower lip with a paler mid-petal band bounded on either side by a rich-purple zone" on Maas Geesteranus 5203; "the inferior lip blue" on Bequaert 3989.

Collectors have encountered this plant on herbaceous and wooded savannas, *Andropogon* steppes and grasslands, in pastures and along roadsides, in thickets and coppices, among sclerophyllous vegetation on lava flows, among volcanic boulders, along the borders of streams, on lava plains and cultivated steppes, in *Erythrina lapilli* thickets, in light forests on heavy brown loam, among rocks and in hollows on hillsides, on savannas with *Entada* and *Combretum* or with *Acacia*, in grass and *Bauhinia* scrub on hillsides, and among riverside rocks, from 800 to 2660 m. altitude, in flower in every month of the year, and in fruit in March, April, and September to December. Greenway & Doughty describe it as "common but scattered in grasslands with *Combretum*, *Terminalia*, *Vitex*, *Entada*, *Acacia stenocarpa*, and native cultivations of maize and sorghum" in Kenya; in the same country Maas Geesteranus found it growing "in open savanna woodland along edge of forest with scattered *Acacia lahai*, *Erythrina tomentosa*, *Syzygium cordatum*, and clumps of shrubs in boulder-strewn country sloping to the south". Also in Kenya Lucas refers to it as "common but well scattered bush to 5 feet tall on escarpment roadsides" at 4000 feet

altitude.

Vernacular names reported for this plant are "achwimpodo", "chesamisok", "chesamisyet", [=bad odor], "esyapot", "mokosamama", "n'angho ngol yako". "masufi", "obetik" [=easy to lose or not easy to find], "obetyot", "umukanyama", "umukuzaniana", "umukuzaniana", and "umukusanyana".

In Zaire an extract of the roots is used as a remedy for blennorrhagia, while in Tanzania it is used as an antidote for venomous snakebites.

Baker (1900) cites for this species Wilson 138 from Uganda, Welwitsch 5700 from Angola, Holst 2571, Johnston 95, and Volkens 226 from Tanganyika, Peters s.n. from Mozambique, Buchanan 33, Kirk s.n., and Whyte s.n. from Malawi, and Holub s.n. from Zimbabwe.

Almagia (1903) cites Ragazzi 195, "P. 3399", and "T. P. 782" for his proposed *Cyclonema myricoides* var. *tomentosum* and comments that "Ho creduto di poter distinguere gli esemplari sopra citati come una varietà del *Cyclonema myricoides* (R. Br.) perchè le foglie, a differenza di quelle del tipo, si presentano tutte più o meno tomentose".

Fries (1916) cites his no. 1593 from the Vulkan Mountains and gives the overall distribution of the species, as regarded by him, as tropical eastern and central Africa from Uganda to Nyasaland, Zimbabwe and Angola. He comments that "In der Gebirgen am Südende des Kiwu-Sees (ca. 1500 m. ü. M.) wurde noch eine manns hohe, strauchartige *Clerodendron*-Art mit eirunden Blättern gesammelt (n. 1509), die ich in den Herbarien nicht gefunden habe. Da sie nur im Fruchtstadium vorliegt, ist ihre Identifizierung gegenwärtig nicht möglich."

DeWildeman (1920) cites and bases his *C. bequaerti* on Bequaert 2754, 3454, 3989, 4213, 4907, 5021, 5544, & 5828 from Zaire. He comments that "La vilosité du calice est plus ou moins accentué, elle passe du gris au violacé, couleur qui se conserve parfois à l'état sec. Toutes les feuilles supérieures des rameaux florifères sont dentées, parfois on trouve à la base des rameaux des feuilles presque entières, ce qui forme le passage vers la forme que nous avons rattachée à cette espèce le nom de *Debeerstii* (plante recueillie par R. P. Debeerst, à Pala [Katanga])." The proposed binomial, *C. bequaerti*, being a homonym of his *C. bequaerti* published in 1914, is the basis of the later binomials, *C. villosum* DeWild. and *C. wildeemannianum* Robyns. DeWildeman, in his 1922 work, cites the same Bequaert 2754, 3454, 3989, 4213, 4907, 5021, 5544, & 5828 from Zaire.

Thomas (1936) cites Peters s.n. from Mozambique (the type collection); Busse 873, Merker 312, Meyer 30, Mildbraed 1123, Stuhlmann 1693, 1741, & 8787, and Uhlig 396 from Tanganyika; Bequaert 3454, 3989, 4213, 4907, 5021, & 5544, Debeerst 13, Linder 2039, and Witte 1290 from Zaire; Neumann 158 from Ethiopia; and Troll 5935 from Kenya.

Robyns (1947) cites Bequaert 3454, 3989, & 4213, DeWitte 1290, Fries 1593, Lebrun 5039, and Roechoudt 7 & 13 from Zaire and comments: "Arbuste tropophile et fort variable, habitant les savanes de l'Afrique tropicale central et orientale, s'étendant vers l'Abyssinia au Nord et vers l'Angola et le Mozambique au Sud. Au Congo Belge.

il se rencontre dans le Sud du District du Lac Albert, dans le District des Lacs Edouard et Kivu et dans le Ruanda occidental... Cette espèce est très voisine du *Cl. myricoides* (Hochst.) Vatke, dont elle n'est peut-être qu'une forme tomenteuse."

Dale & Greenway (1961) cite Fries 274a, Hildebrandt 2729, Jex Blake 2559, Johnston s.n., Klässner 683, and Whyte s.n. from Kenya, where they found it in the Rift Valley, Central and Southern Provinces, commenting that "Greenway considers that this plant is unworthy of specific rank and should revert to a variety of *C. myricoides*." Glover (1967) cites Kerfoot 2139 from Kenya, while Lewalle (1972) cites Lewalle 129 from Burundi.

Vatke (1882) comments that the remainder of the taxa placed by Klotzsch in *Cyclonema* actually belong, instead, to the very distinct genus *Holmskioldia*.

It may well be found helpful to reproduce here the key to the species known to Dale & Greenway (1961) from Kenya, somewhat modified by me for the sake of clarity:

1. Flowers actinomorphic.
2. Inflorescence capitate, rarely in closed cymes.
 3. Corolla-tube to 12.5 cm. long..... *C. fischeri*.
 - 3a. Corolla-tube less than 12 cm. long.
 4. Corolla-tube to 7.5 cm. long; leaves opposite or ternate..... *C. rotundifolium*.
 - 4a. Corolla-tube only to 2.5 cm. long or less; leaves opposite, ternate, or quaternate.
 5. Corolla-tube about 2.5 cm. long; leaves opposite, ternate, or quaternate, the blades not punctate..... *C. acerbianum*.
 - 5a. Corolla-tube only about 1.2 cm. long; leaves opposite or ternate, the blades glandular-punctate beneath..... *C. eriophyllum*.
 - 2a. Inflorescence of closed cymes, rarely capitate.
 6. Corolla-tube to about 7.5 cm. long; calyx to 1.2 cm. long.... *C. rotundifolium*.
 - 6a. Corolla-tube only to 1.2 cm. long; calyx to 3 mm. long.
 7. Leaf-blades glabrous or glabrescent..... *C. glabrum*.
 - 7a. Leaf-blades always pubescent.
 8. Inflorescence dense, in many-flowered terminal and axillary cymes; leaf-blades ovate, to 6.5 cm. long, apically acute, glandular punctate beneath..... *C. glabrum* var. *vagum*.
 - 8a. Inflorescence a terminal corymbose panicle, sometimes also with cymes in the upper leaf-axils; leaf-blades ovate or ovate-elliptic, to 12.5 cm. long, apically rounded or cuspidate..... *C. johnstonii*.
 - 2b. Inflorescence of open cymes, usually paniculate..... *C. hildebrandtii*.
 - 1a. Flowers zygomorphic.
 9. Plant leafless when in flower; corolla-tube short, the lobes declinate..... *C. makanjanum*.
 - 9a. Plant leafy when in flower; corolla-tube enlarged, saccate on one side above, cleft on the other side, the anterior lobe

- arched and much larger than the others.
10. Leaves opposite or ternate, glabrous, not bicolored; corollas in shades of blue and white.
 11. Leaves opposite, distinctly petiolate, the blades not glandular-punctate; calyx-lobes apically obtuse and reflexed.....*C. scheffleri*.
 - 11a. Leaves opposite or ternate, subsessile, the blades glandular-punctate beneath; calyx-lobes apically broadly acute, not reflexed.....*C. ugandense*.
 - 10a. Leaves verticillate, the blades pubescent or glabrous, often bicolored; corollas blue or purple.
 12. Branches densely pubescent or tomentose; leaf-blades elliptic or obovate-elliptic, to 7.5 cm. long, more or less densely pubescent or subtomentose beneath; calyx more or less densely pubescent.....*C. discolor*.
 - 12a. Branches glabrous or only lightly pubescent; leaf-blades ovate-elliptic to oblong, to 12.5 cm. long, glabrous above and only very sparsely pubescent or subglabrous and glandular-punctate beneath; calyx glabrous or only very sparsely puberulent.....*C. myricoides*.

The subspecific taxa of *Clerodendrum discolor* may be distinguished as follows, in a key taken, with modifications, from Thomas (1936):

1. Branches few-flowered, not 6-angled nor ridged, more or less pubescent; leaf-blades marginally more or less dentate.
2. Calyx only to 2 or 3 mm. long, subglabrous; leaf-blades marginally sharply serrate, only sparsely pubescent above.....
var. *dilimmeri*.
 - 2a. Calyx about 4 mm. long, pubescent.
 3. Leaves often whorled on abbreviated branchlets.
 4. Calyx red.....var. *rubericalyx*.
 - 4a. Calyx green.....typical *C. discolor*.
 - 3a. Leaves regularly opposite; branches tetragonal.
 5. Individual cymes many-flowered.....var. *oppositifolium*.
 - 5a. Individual cymes only 1- or 2-flowered and very long-stipitate.....var. *crenatum*.
- 2b. Calyx more than 4 mm. long, usually about 6 mm. long; calyx and corolla-tube very pubescent; branches more or less round in cross-section.....var. *kilimandscharense*.
- 1a. Branches many-flowered, 6-angled and with longitudinal ridges, subglabrous; leaf-blades marginally subentire..var. *pluriflorum*.

It may be worth noting here that the Klotzsch (1861) reference in the synonymy and bibliography of this species is often cited as "1862"; Jackson (1893) cites it to page "260" -- he also cites the Vatke (1882) reference by the titlepage date "1880--1882". Cu福德 (1962) cites the Almagia trinomial to "1904" instead of 1903.

Material of what appears to be typical *C. discolor* has been misidentified and distributed in some herbaria as *C. discolor* var. *dilimmeri* Thomas, *C. incisum* Klotzsch, *C. myricoides* (Hochst.) R. Br., "*C. myricoides* sens. lat.", and *C. ugandense* Prain. On the other hand, the Daviess 23248 and Tanner 668, distributed as typical *C.*

discolor, actually are *C. discolor* var. *crenatum* Thomas, while Buchanan 1383 and Mearns 1223 are *C. discolor* var. *dummeri* Thomas; Germain 6520 is *C. discolor* var. *kilimandscharense* Thomas; Fries, Norlindh, & Weimarck 2456, Hildebrandt 2729, Honey 807, Mearns 1051, 1111, 1177, 1938, & 2539, F. A. Mendonça 147, 1374, 1418, 1426, 2510, & 3612, Robinson 2935, Stoltz 317, Torre 588, 3156, 3206, 3759, 5977, & 6213, and Whyte s.n. [Zomba] are *C. discolor* var. *oppositifolium* Thomas; Gomes & Sousa 4334, Stoltz 470, Torre 4741, and Torre & Paiva 9426 are *C. discolor* var. *pluriflorum* Thomas; Lemos & Balsinhas 272, Torre & Paiva 9747, and Troupin 5551 are *C. myricoides* var. *camporum* Gürke; Lewalle 4049 is *C. myricoides* var. *niansanum* Thomas; Barbosa 1018, 1059, & 1582, Garcia 323, and Torre & Paiva 9884 are *C. reflexum* H. H. Pearson; and Reekmans 1627 is *C. ugandense* Prain; Des-camps 13 seems definitely to be *C. dekindtii* Gürke.

Citations: SUDAN: Michael 728 [99] (Gz). ERITREA: Schweinfurth & Riva 1055 (W--829447). ETHIOPIA: C. C. Albers 62242 (Au--223603); Ash 2947 (Mu). ZAIRE: Becquet 327 (Br, Br, Br), 400 (Br); Bequaert 1290 (Br), 2754 (Br, N, W--1270180), 3454 (Br), 3989 (Br), 4213 (Br), 4907 (Br), 5021 (Br), 5544 (Br, Ld--photo, N--photo), 5828 (Br), s.n. [25.XI.14] (Br); Craton 89 (W--2168589); Germain 1117 (Br), 2897 (Af, Br), 4113 (Br); Ghesquiere 3830 (Br), 5680 (Br, Br, Br); Humbert 7344 (Br); Lebrun 4193 (Br, Br, N); 8243 (Br), 9189 (Br); Luja 76 (Br, Br, N); Robert 19 (Br, Br); Roehoudt 7 (Br), 13 (Br). BURUNDI: Lewalle 129 (Mu), 2535 (Gz, Ld, Ld); Reekmans 1388 (E--2209173), 1988 (E--2209183), 6546 (N). RWANDA: Tropin 6011 (W--2375315). UGANDA: Dummer 2572 (W--634882); Dyson-Hudson 233 (W--2568351); A. Holm 29 (S). TANZANIA: Tanganyika: E. M. Bruce 36 (Br); Busse 912 [Peter 51869] (B); Faulkner 1496 (B, S); Peter 702 [O.I.19] (B, B), 1492 [O.I.37] (B), 1751 [O.I.43] (B), 3019 [O.I.74] (B, B), 9177 [O.III.56] (B, B), 9730 [O.III.66] (B), 14236 [O.III.206] (B), 14351 [O.III.209] (B), 42178 [V.280] (B), 51786 [O.I.129] (B); Schlieben 4294 (B), 7294 (Mu); Tanner R.T. 3291 (Ba), 3831 (Ba), 4806 (Ba); Volkens 226 (L). KENYA: Greenway & Doughty 8526 (Af); Lindblom s.n. [1911-1912] (S); Lucas 191 (S); Maas Geesteranus 5203 (Go); Mearns 61 (W--630061), 162 (W--630169), 981 (W--631016), 1037 (W--631073), 1223 (N, N, W--631267), 1230 (W--631274), 1808 (W--631769), 1926 (W--631882); Newbould 3523 (S); Piemeisel & Kephart 78 (W--1373183); B. C. Stone 7937 (K1--10571, W--2584493A); Strid 4095 (Go). ZAMBIA: Robinson 2935 (Ba). MOZAMBIQUE: Manica e Sofala: F. A. Mendonça 3874 (U1). CULTIVATED: Sudan: Kassas 632 (Gz).

CLERODENDRUM DISCOLOR var. *CRENATUM* Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 85 & 86. 1936.

Bibliography: B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 85 & 86. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 49 & 89 (1942) and ed. 2, 116 & 181. 1949; Mold., Résumé 143, 148, & 449. 1959; Mold., Fifth Summ. 1: 233, 234, & 247 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 223, 225, 236, 242, 244, & 536. 1980.

This variety differs from the typical form of the species in its decussate-opposite leaves, long-pedunculate 1- or 2-flowered cymes, and (presumably) crenate-margined leaf-blades.

The variety is based on *Conrads 8* from Bukumbi, at 1190 m. altitude, Uganda, deposited in the Berlin herbarium, now doubtless destroyed.

Collectors describe this plant as a pleasantly aromatic shrub, 2-3 m. tall, or a small tree, the bark smooth, and the sap colorless. Tanner refers to the corollas as "mauve", while Schlieben describes them as "yellowish-white". It has been found in thick cover on bouldered hills at altitudes of 3500--4650 feet, in flower in January, February, April, and December, and in fruit in February.

Tanner reports its occurrence in Tanganyika as "many bushes but flowers very infrequently"; Schlieben refers to it as "scattered" in the Transvaal.

Material of this taxon has been misidentified and distributed in some herbaria as typical *C. discolor* (Klotzsch) Vatke and its variety *oppositifolium* Thomas and *C. myricoides* (Hochst.) R. Br. On the other hand, the Dinter 5301, distributed as *C. discolor* var. *crenatum*, actually is *C. dekinkhtii* var. *dinteri* Thomas.

Citations: ZIMBABWE: Daviess 23248 (N); G. M. McGregor M.13/51 [Govt. Herb. Salisbury 32448] (N). TANZANIA: Tanganyika: Burtt 5105 (Br, Ld--photo, N--photo); Tanner 668 (Ca--178139, Mi, N). SOUTH AFRICA: Transvaal: Schlieben 7709 (W--2272492).

CLERODENDRUM DISCOLOR var. *DÜMMERI* Thomas, Engl. Bot. Jahrb. 68:
[Gatt. Clerod.] 85 & 86. 1936

Synonymy: *Clerodendrum discolor* var. *dummeri* Thomas apud Mold., Known Geogr. Distrib. Verbenac., ed. 1, 49 & 89. 1936.

Bibliography: B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 85 & 86. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 49 & 89. 1942; H. N. & A. L. Mold., Pl. Life 2: 57. 1948; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 116 & 181. 1949; Mold., Résumé 141, 143, 145, & 449. 1959; Mold., Fifth Summ. 1: 228, 233, 235, & 240 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 223, 225, 230, 238, & 536. 1980.

This variety differs from the typical form of the species in its mostly smaller calyx, which is only 2-3 mm. long during anthesis and is externally subglabrate. The leaf-blades are marginally sharply serrate and only sparsely pubescent on the upper surface.

The variety is based on *Dümmer 94* from Kipayo, Uganda, deposited in the Berlin herbarium, now doubtless destroyed. Thomas (1936) cites also Schlieben 2818 from Tanganyika.

Collectors describe the plant as a small or tall bush, erect or straggly shrub, 0.7--3.5 m. tall, or even a small tree, the stems several from a woody rootstock, the inflorescence as a whole purplish, and the drupes yellow to finally black and shiny. They have encountered it on savannas and in swamps, at 1200--2500 m. altitude, in both flower and fruit in February and June and also in flower in October and in fruit in December.

Mrs. Forbes mistakenly refers to the fruit as "berries" and refers to the plants as "occasional shrubs on open savannas" in Uganda, while in Kenya Leippert describes the plant as "common" along roadsides.

Almost every collector describes the flowers (corollas) differently: they are said to have been "blue" on Bullock 2377, "pale-blue" on Dümmer 94, "dark-blue" on Robinson M.R. 23749, "blue-violet" on Rauh Ke.343, "violet" on Leippert 5228, and "blue in effect but the keel deep-violet and the other petals fawn" on Forbes 198, the Collector undetermined 71 bears a label describing the corollas as "lilac to violet".

A vernacular name reported for the plant in Zaire is "achwinpodo".

Material of this variety has mostly been identified and distributed in herbaria as typical *C. discolor* (Klotzsch) Vatke or as *C. myricoides* (Hochst.) R. Br. Thomas (1936) regarded the Buchanan 1383, cited below, as var. *oppositifolium* Thomas.

Citations: ZAIRE: Bredo 1243 (Br), 1324 (Br), 1365 (Br, N), 1556 (Br), 1674 (Br); Casteels 15 (Br); Claessens 1390 (Br, N), 1461 (Br); Collector undetermined 71 (Br); Craene 119bis (Br, Br, Br, Br); Delphen s.n. [Uele 1904] (Br); Germain 4102 (Br, Br); Henager 75 (Br); Jurion 72 (Br, N), 194 (Br, Br, Br); Lathouwers I/7 (Br, Br), III.5 (Br, Br, N); Lebrun 3980 (Br, Br), 5039 (Br); Scops 109 (Br), 190 (Br); Steyaert M.19 (Br, N); Taton 89 (Br, Br). UGANDA: Dümmer 94 (W--633434--isotype); Mrs. M. Forbes 198 (Af); Mearns 1223 (N), 2539 (Br); Rogers & Gardner 374 (Br). TANZANIA: Tanganyika: Bullock 2377 (B); Leedal 3163 (Ld); Richards M.R. 23749 (Mu); Schlieben 2818 (Br, Ld--photo, N--photo). KENYA: R. M. Graham 1031 (Br); Leippert 5228 (Mu); Rauh Ke.343 (Mu). MALAWI: J. Buchanan 1383 (W--807416).

CLERODENDRUM DISCOLOR var. *KILIMANDSCHARENSE* Thomas, Engl. Bot.

Jahrb. 68: [Gatt. Clerod.] 85. 1936.

Synonymy: *Clerodendrum discolor* var. *kilimandscharense* Thomas ex Mold., Résumé Suppl. 15: 19 in syn. 1967.

Bibliography: B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 85. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 49, 50, & 89 (1942) and ed. 2, 116, 117, & 181. 1949; Mold., Résumé 138, 141, 143, 145, 148, & 449. 1959; Mold., Résumé Suppl. 15: 19. 1967; Mold., Fifth Summ. 1: 221, 228, 235, 240, 247, & 461 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 212, 218, 225, 230, 237, 396, & 536. 1980.

This variety differs from the typical form of the species in having the calyx about 6 mm. long at time of anthesis, externally densely pubescent, the corolla-tube densely pubescent, and the branches more or less round in cross-section.

The variety is based on Volkens 252, from Marangu, at 1500 m. altitude, on Mt. Kilimandjaro, Tanganyika, collected in April of 1893 and deposited in the Berlin herbarium, now lamentably destroyed. Thomas (1936) cites also Endlich 75, Holst 2571, Petzholz 25, and Volkens 226 from Tanganyika and Fries 74a and Kassner 683 from Kenya.

Collectors describe this plant as an erect, woody perennial, a 2--3-foot tall bush, or a "medium-sized tree", and have found it growing on burned-over ground in the open veld, at 350--1500 m. altitude, in flower in January, August, October, and December. The corollas are said to have been "blue" on Endlich 75 and Robinson 4805, "light-blue" on Germain 6520, "pink" on Borle s.n., and "lower petal blue,

the rest pale-green" on Wild 2068.

Material of this variety has been distributed in herbaria as typical *C. discolor* (Klotzsch) Vatke, *C. myricoides* (Hochst.) R. Br., *Bouchea hederacea* Sond., and *Holmskioldia* sp. On the other hand, the Goldsmith 101/61, distributed as *C. discolor* var. *kilimandscharense*, actually is better regarded as var. *oppositifolium* Thomas and Milne-Redhead 625 is *C. lumbuense* DeWild.

Citations: ZAIRE: Germain 6520 (Mu); Quarre 4810 (Br, Br, Br, N). TANZANIA: Tanganyika: Endlich 75 (Mu); E. A. Robinson 4805 (Mu); Volkens 226 (Br, Ld--photo, N, N--photo). KENYA: Fries & Fries 274a (Br, S); Lindblom s.n. [1911-1912] (S). ZIMBABWE: Borle s.n. (Af); Hack 14 (Rh--12610); Lanjouw 1348 (Ut--46287a); Wild 2068 (Rh--17952).

CLERODENDRUM DISCOLOR var. *MACROCALYX* Mold., Phytologia 4: 47. 1952.

Bibliography: Mold., Phytologia 4: 47. 1952; Mold., Résumé 141 & 449. 1959; Mold., Fifth Summ. 1: 228 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 218 & 536. 1980.

This variety differs from the typical form of the species in having the calyx at time of anthesis broadly campanulate, 7--9 mm. long and wide, decidedly red-tinged on the lobes, and externally pubescent, and the leaves decussate-opposite.

The variety is based on *P. Quarre* 1872 from Mimanua, Zaire, collected in August of 1929 and deposited in the Brussels herbarium. Thus far it is known only from the original collection.

Citations: ZAIRE: Quarre 1872 (Br--type, Br--isotype, Br--isotype, Ld--photo of type, N--isotype, N--photo of isotype).

CLERODENDRUM DISCOLOR var. *OPPOSITIFOLIUM* Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 85 & 86. 1939.

Bibliography: B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 85 & 86. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 51 & 89. 1942; Mold., Alph. List Cit. 1: 74 (1946), 2: 558 (1948), 3: 762 & 952 (1949), and 4: 1123. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 119, 120, & 181. 1949; Wild, Vict. Falls Handb. 158. 1953; Mold., Résumé 141, 143, 148--150, 153, 215, & 449. 1959; Mold., Résumé Suppl. 3: 15 (1962), 12: 6 (1965), 13: 4 (1966), and 16: 7 & 8. 1968; Mold., Fifth Summ. 1: 224, 232, 235, 242, 247, 249, 250, 255, & 358 (1971) and 2: 864. 1971; Lewalle, Bull. Jard. Bot. Nat. Belg. 42 [Trav. Univ. Off. Dujumb. Fac. Sci. C.20]: [230]. 1972; Mold., Phytologia 34: 261 & 262. 1976; Mold., Phytol. Mem. 2: 218, 222, 223, 225, 230, 232, 235, 237, 238, 240, & 536. 1980; Reis & Lipp, New Pl. Sources Drugs 251. 1982; Mold., Phytologia 58: 332. 1985.

This variety differs from the typical form of the species in having the cymes many-flowered and the leaves decussate-opposite.

The variety is based on Buchanan 6982 from Blantyre, Malawi, collected in 1895, and deposited in the Berlin herbarium, now doubtless destroyed. Thomas (1936) cites also Buchanan 1383 (regarded by me as var. *dummeri*) and Whyte s.n. from Malawi.

Collectors have described this plant as a much-branched "shrubby herb", a small bush, or a low, erect, woody, pubescent shrub or sub-

shrub, 0.5--3 m. tall, sometimes scandent, branched from the base, single- or many-stemmed, growing in groups, or even as a tree, 4--6.5 m. tall, the bark rough and fissured, the branches tetragonal, the sap colorless, the leaves unpleasantly aromatic or odorless, somewhat fleshy, the blades to 15 cm. long, the upper side drying darker, the lower side slightly lighter green and softly pubescent, the inflorescence to 30 cm. long, flowers very dainty, handsome, pleasantly aromatic, pollinated by large bees, the calyx 4 mm. long, the filaments elongate, curved, delicately pale-mauve, the anthers black, the style delicately pale-mauve, and the fruit drupaceous, at first green, then red-tinged, finally dark-brown or black, fleshy.

The corollas are described as having been "blue" on Goldsmith 101/61, Jack s.n., Peter 38013 & 42444, Pole-Evans & Erens 912, and Quarre 1376, "light-blue" on Peter 18649, "pale-blue" on Benson 964 and Greenway 6282, "bluish" on Peter 45742, "bright-blue" on Benson 992, "lilac-blue" on Tanner 3291, "lavender-blue" on Shantz & Turner 4115, "clear-blue" on Lawalle 2365 and Santos 674, "lilac" on Torre & Paiva 11082, "blue-green" on Munch 345, "greenish" on Peters 34294, "mauve" on Faulkner Kew.104 and Panton s.n., "delicate pale-mauve" on Norman S.17, "grayish-blue" on Peter 9657, "mauve to violet" on Reekmans 2047, "blue and white" on Peter 33718, "greeny-purple" on Faulkner 137, "greenish-yellow" on Torre & Paiva 11007, "white" on Shabani 884, "white with 1 petal blue" on Gomes Pedro 407, "with violet lip" on Torre 3156, "with the lower petal violet" on Torre 588, "blue, the center petal deeper blue" on Richards 27074, "lower petal blue, the remainder green" on Wild 2027 & 2988, "lip bright-blue, the remainder green" on Bullock 2228, "greenish-cream with 1 large blue petal" on Leach 11286, "green except for the pale-blue lower petal" on Robinson 2935, and "4 lobes white, the 5th bright-blue" on Miller B.1140. On Eyles 458 the label states "corolla-tube green, 2 lateral pairs of lobes greenish and at right angles to the axis, the 5th lobe narrow, blue, and parallel with the axis".

Collectors have found this plant growing on savannas and shrubby savannas, herbaceous savannas with grasses growing to 3 m. tall, *Acacia albida* grasslands, tree-grass and sand veld, grassy campos, secondary steppes, primeval forests and *Brachystegia* woodlands, shortgrass open downlands, and roadside scrub, along roadsides and brooks, on rocky hillsides, in thin sandy soil of pastures, at the edges of pine plantations, in the substrate of deciduous forests, on rocky granitic deserts, among rocks on hill slopes and riversides, in red soil of bushland, and on the inner slopes of volcano craters, at 65--2300 m. altitude, in flower in every month of the year, and in fruit in February, May, and September to November. Faulkner refers to it as "fairly common in plantations and light forests" in Mozambique, where there is an average annual rainfall of 32 inches; Greenway found it "local in *Hyparrhenia* grasslands" in Malawi.

Vernacular names recorded for this plant are "n'amgho ngoi yako", "nghuwambu wa matongo", "omufiglamapongo", and "umukuzanyana".

In Tanganyika a decoction of the roots is used as an enema to treat constipation. The roots are also pounded in cold water and the resulting decoction used to treat stomach-ache. The leaves are

thrown into campfires to ward off mosquitoes.

The Bullock 2228a collection, cited below, is said by the collector to have been taken "from a young plant with larger leaves and relatively fewer flowers, the latter larger and the green portion almost white".

Wild (1953) cites Allen 102 from Victoria Falls, while Lewalle (1972) cites Lewalle 2365 from Burundi.

Material of *C. discolor* var. *oppositifolium* has been distributed in many herbaria as typical *C. discolor* (Klotzsch) Vatke or as *C. myricoides* (Hochst.) R. Br. and in some herbaria as *C. bukobense* Gürke, *C. cuneatum* Gürke, *C. discolor* var. *kilimandscharense* Thomas, *C. tanganyikense* J. G. Baker, and *Cyclonema sylvaticum* Hochst.

On the other hand, the Dehn 558, distributed as *C. discolor* var. *oppositifolium*, seems better placed as *C. cuneiforme* Mold., while Davies 23248 is *C. discolor* var. *crenatum* Thomas and Dehn 558/53 seems to be *C. discolor* var. *pluriflorum* Gürke.

Citations: ZAIRE: Bequaert 252 (Br); Bredo 3472 (Br), 3495 (Br); Cabu 137 (Br); Giorgi 42 (Br), 56 (Br); Homblé 733 (Br); Quarre 1376 (Af, Br, Br, Br), 6076 (Br), 7058 (Br), 7156 (Br), 7600 (Br, N); Risopoulos 201 (E--2168590); F. A. Rogers 10174 (Tm). BURUNDI: Lewalle 2365 (Ac), 2484 (Gz, Ld), 2933 (Gz); Reekmans 2047 (E-2209182); Troupin 8653 (Hi--206784). RWANDA: Troupin 5635 (N), 8535 (N). UGANDA: Norman S.17 (W--2071996). TANZANIA: Tanganyika: Bullock 2228 (B); Koritschoner 1855 (Af); Peter 382 [0.I.15] (B), 7849 [0.III.12] (B), 9567 [0.III.69] (B), 9657 [0.III.70] (B), 17744 [0.IV.101] (B), 18385 [0.IV.120] (B), 18649 [0.IV.130] (B), 21339 [0.IV.208] (B), 22664 [0.IV.264] (B), 23492 [0.IV.303] (B), 33718 [V.109] (B), 34294 [V.116] (B), 34542 [V.122] (B), 38013 [V.170] (B), 42383 [V.286] (B), 42444 [V.287] (B), 43595 [V.315] (B), 45742 [V.110] (B, B), 51785 [0.I.117] (B), 51793 [0.IV.120] (B), 51796 [0.IV.327] (B), 0.I.18 (B, B); Pole-Evans & Erens 912 (Af); M. Richards 27074 (N); Shabani 884 (Mu); Tanner 1208 (Mi, N), 3291 (Mi, N); J. H. Vaughan 2654 (W--2963763). KENYA: Hildebrandt 2729 (Mu--1612); Mearns 1051 (W--631087), 1111 (W--631148), 1177 (W--631220), 1938 (W--631895), 2539 (W--632498). ANGOLA: Huila: "Antunes or Dekindt" 366 (U1), s.n. (U1, U1); Barbosa & Moreno 9986 (U1); Gossweiler 13440 (U1); E. J. Mendes 437 (U1), 608 (U1), 846 (U1); F. A. Mendonça 4621 (U1); R. Santos 107 (U1), 674 (U1). Mossamedes: Henriques & Moreno 79 (U1). ZAMBIA: E. A. Robinson 2935 (Mu). ZIMBABWE: C. E. F. Allen 102 (Rh); N. C. Chase 3648 [Govt. Herb. Salisb. 33832] (N), 3649 [Govt. Herb. Salisb. 33831] (N), 4156 [Govt. Herb. Salisb. 35474] (N); Corby 228 [Govt. Herb. Salisb. 22380] (N); Crook M.130 [Govt. Herb. Salisb. 31664] (N); R. M. Davies D.255 [Govt. Herb. Salisb. 23248] (N); Eyles 458 (Rh), 5067 (Rh); Fries, Norlindh, & Weimarck 2456 (Mu); B. Goldsmith 101/61 (S); Gomes Pedro 407 [Herb. Moç. Cent. Invest. Cient. 497] (Af); Hack s.n. (Rh--12979); J. C. Hopkins s.n. [Govt. Herb. Salisb. 7865] (N), s.n. [Govt. Herb. Salisb. 7783] (N); R. W. Jack s.n. [Govt. Herb. Salisb. 7478] (N, Rh); Leach 11286 (Mu); Lovemore 177 [Govt. Herb. Salisb. 35143] (N); "H. G. M." 2634 (Rh); G. M. McGregor M.14/51 [Govt. Herb. Salisb. 32449] (N); O. B. Miller B.1140 (Af); Panton s.n. [Govt. Herb. Salisb. 30810] (Af, Bm, N); Peter 51164 [S.66] (B); Wild 2027 [Govt. Herb.

Salisb. 18175] (K, N), 2988 (Rh--25185). MALAWI: F. M. Benson 964 (Af--28114), 992 (Af-28109); J. Buchanan s.n. [J. M. Wood 6982; Natal Herb. 14288] (Na); Greenway 6282 (Af); E. Lawrence 234 (Br); Stoltz 317 (Mu--4222); Whyte s.n. [Dec. 1896] (N), s.n. [Zomba] (W--550810). MOZAMBIQUE: Huíla: Mendes 608 (Ld). Manica e Sofala: Torre 2156 (U1), 3759 (Ld). Niassa: Torre 588 (U1, U1); Torre & Paiva 11007 (U1). Quelimane: Faulkner Kew. 104 (N). Tete: Torre & Paiva 11082 (U1). Zambezia: F. A. Mendonça 1426 (Ld). Province undetermined: Cedro 433 (Af); Faulkner 137 (Af); Honey 807 (Af, N--photo); Hornby 2826 (Af); Munch 345 [Govt. Herb. Salisb. 30568] (N). SOUTH AFRICA: Natal: Krauss s.n. [Oct. '39] (Mu--873). Transvaal: Roberts s.n. [Herb. Transv. Mus. 15844] (Tm); Schlieben 7709 (N); Shantz & Turner 4115 (Au--123209, Tu--129118). CULTIVATED: New York: Borin s.n. [N. Y. Bot. Gard. Cult. Pl. 78465] (N).

CLERODENDRUM DISCOLOR var. **PLURIFLORUM** Gürke, Engl. Bot. Jahrb. 30: 391 [as "Clerodendron"]. 1901; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 85. 1936.

Synonymy: *Clerodendron discolor* var. *pluriflorum* Gürke, Engl. Bot. Jahrb. 30: 391. 1901. *Clerodendrum discolor* var. *pluriflorum* Thomas ex Mold., Alph. List Inv. Names 21 in syn. 1942.

Bibliography: Gürke, Engl. Bot. Jahrb. 30: 391. 1901; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 85--86. 1936; Mold., Alph. List Inv. Names 21. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 45, 49--51, 80, & 89 (1942) and ed. 2, 110, 116, 118, 120, 181, & 214. 1949; Mold., Résumé 134, 141, 143, 146, 149, 150, 272, & 449. 1959; Cuf., Bull. Jard. Bot. Brux. 32: Suppl. 799. 1962; Mold., Résumé Suppl. 13: 4. 1966; Mold., Fifth Summ. 1: 212, 228, 235, 242, 249, 250, & 461 (1971) and 2: 864. 1971; Mold., Phytologia 34: 261. 1976; Mold., Phytol. Mem. 2: 203, 218, 225, 230, 232, 237, 238, 240, 244, 249, & 536. 1980.

This variety differs from the typical form of the species in having many-flowered branches which are 6-angular, with longitudinal ridges, and subglabrate, the leaf-blades marginally subentire.

The variety is based on Goetze 1437 from Kananda in Unyika, Tanganyika, collected on November 14, 1899, and deposited in the Berlin herbarium, now doubtless destroyed.

Collectors describe this plant as a small, mostly sarmentose shrub, 1.5--5 m. tall, usually many-stemmed, sometimes 1-stemmed, the stems when single to 2 cm. in diameter at the base, the leaf-blades paler beneath, and the flowers profuse. They have found it on hilly plateaus, in thick bushland on black soil, among volcanic boulders on "cultivation steppes", and in forests of tall trees and dense shrubs with *Chlorophora excelsa*, *Sterculia appendiculata*, and *Cusonia arborea*, at 200--1700 m. altitude, in flower in January, February, May, and November. Gomes & Sousa refer to it as "frequent in red loamy soil of open forests" in Mozambique.

The corollas are said to have been "blue" on Gomes & Sousa 4334, Perdue & Kibuwa 8136, and Torre 707, "blue-lilac" on Barbosa & Moreno 10142, "blue-violet" on Ash 2947, and "violet" on Torre 4741.

Thomas (1936) cites Steudner 1309 from Ethiopia, Busse 912, Goetze

Schlieben 213 & 238 and Stoltz 470 from Tanganyika, Tiesler 29 from Mozambique, and Fritzsche 282 and Hundt 68 from Angola. Cufodontis (1962) cites only Goetze 1437 and Steudner 1309.

The Torre 4741 collection, cited below, is said (in an annotation on the mounted sheet) to match Goetze 1437 and Hundt 68 in the British Museum herbarium.

Material of this variety has been distributed in some herbaria as typical *C. discolor* (Klotzsch) Vatke and as its var. *oppositifolium* Thomas.

Citations: ETHIOPIA: Ash 2947 (W--2837028). ZAIRE: Quarre 2629 (Br, Br), 2836 (Br, Br, Br, Br, N). TANZANIA: Tanganyika: Goetze 1437 (Br--isotype, Ld--photo of isotype, N--fragment of isotype, N--photo of isotype); Schlieben 238 (Br, Ld--photo, N, N--photo). KENYA: Perdue & Kibwua 8136 (Mu). ANGOLA: Huíla: Barbosa & Moreno 10142 (U1); Mendes 609 (U1), 635 (U1), 637 (Ld, U1). Mossamedes: Fritzsche 282 (S). ZIMBABWE: Dehn 558/53 (Mu). MALAWI: Stoltz 470 (B, Mu--4223, S). MOZAMBIQUE: Niassa: Torre 707 (U1). Province undetermined: Gomes & Sousa 4334 (U1); Torre 4741 (U1); Torre & Paiva 9426 (U1).

CLERODENDRUM DISCOLOR var. *RUBRICALYX* Mold., Phytologia 4: 47. 1952.

Bibliography: Mold., Phytologia 4: 47. 1952; Mold., Résumé 141, 142, & 449. 1959; Mold., Fifth Summ. 1: 228 & 235 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 218, 225, & 536. 1980.

This variety differs from the typical form of the species in its decidedly red calyxes during and after anthesis; these are 3-4 mm. long, 4-6 mm. wide, and externally glabrous; the leaves are ternate.

The variety is based on Rossignol 218 from 2000 m. altitude at Iurala, Zaire, collected on November 25, 1939, and deposited in the Brussels herbarium.

Collectors have encountered this plant "en savane serbeuse mais très seche", at 1100-2000 m. altitude, in flower in April and November, describing it as a "petit arbuste 66--95 cm." tall.

Citations: ZAIRE: Quarre 7970 (Br); Rossignol 218 (Br--type, Ld--photo of type, N--photo of type); RRPP. Salesiens S.976 (Br). TANZANIA: Tanganyika: Schlieben 4294 (Br, N).

CLERODENDRUM DISCOLOR var. *VERBASCIFOLIUM* Mold., Phytologia 7: 79. 1959.

Synonymy: *Clerodendron verbascifolium* Wall. ex Mold., Résumé Suppl. 1: 6 in syn. 1959. *Clerodendron discolor* var. *verbascifolium* Mold. apud Hocking, Excerpt. Bot. A.4: 592. 1962.

Bibliography: Mold., Phytologia 7: 79. 1959; Mold., Résumé Suppl. 1: 9, 16, & 25. 1959; Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Ind. 1959: 53. 1960; Mold., Biol. Abstr. 35: 1688. 1960; Hocking, Excerpt. Bot. A.4: 592. 1962; Mold., Résumé Suppl. 13: 6. 1966; Mold., Fifth Summ. 1: 235, 443, & 459 (1971) and 2: 868. 1971; Mold., Phytol. Mem. 2: 225 & 536. 1980.

This variety differs from the typical form of the species in its very large leaves, which are to 17.5 cm. long and 10 cm. wide and very densely long-pubescent on both surfaces.

[to be continued]